THE LANCET

A Journal of British and Foreign Medicine, Surgery, Obstetrics, Physiology, Chemistry, Pharmacology, Public Health, and News.

Telegrams—LANCET, WESTRAND LONDON *Telephones*—GERRARD 4314 & 4315 *Offices*—423, Strand, London, W.C.

No. X. OF VOL. I., 1927. LONDON, SATURDAY, MARCH 5, 1927 Pp. 128—Price 1s.
No. 5401. Vol. CCXII. Founded 1823. Registered as a Newspaper. Published Weekly. Annual Subscription Inland £2 2s. Abroad £2 10s

OXFORD MEDICAL PUBLICATIONS.

SEE PAGE 2.

IN THE PRESS.
The THIRD (1927) VOLUME of
MODERN TECHNIQUE IN TREATMENT.
Important Announcement.
See pages 6, 7, & 8.
London: THE LANCET, 1, Bedford Street, W.C.2.
Sole Agents for India: Butterworth & Co.

NOW READY.
Royal 8vo. Pp. xii +146. With 60 Illustrations and Coloured Plates. Price 15s., postage 9d.
PRACTICAL GASTROSCOPY
By JEAN RACHET, M.D.,
Assistant at the Hôpital, St. Antoine, Paris.
Authorised translation by
FRED. F. IMIANITOFF, D.S.C., B.A., M.R.C.S.,
Assistant to the Gynæcological Research Department, Institute of Anatomy, Brussels.
Baillière, Tindall & Cox, 7 & 8, Henrietta-st., London, W.C.2.

STERILITY IN WOMAN:
ITS CAUSES AND TREATMENT.
By ROBERT A. GIBBONS, M.D., F.R.C.S.E.,
Gynæcologist to the Grosvenor Hospital for Women.
"It is written clearly, and should make a special appeal to the general practitioner . . . . . We can heartily recommend this useful and well-written book."—THE LANCET.
"The volume provides an admirable account of the whole subject. It is sufficiently full for the needs of the family practitioner, and is written in a refreshingly clear and lucid style."
—BRITISH MEDICAL JOURNAL.
With 44 illustrations, 12s. 6d. J. & A. Churchill, 1923.

MIND AND PERSONALITY.
AN ESSAY IN PSYCHOLOGY AND PHILOSOPHY.
By WILLIAM BROWN, M.D., D.Sc.,
Wilde Reader in Mental Philosophy in the University of Oxford; Psychotherapist to King's College Hospital, London.
"An important book."—THE SPECTATOR.
304 pp. Demy 8vo. 12s. 6d. net.
University of London Press, Ltd., 10 & 11, Warwick Lane, London, E.C.4.

ON THE BREAST.
By DUNCAN C. L. FITZWILLIAMS,
C.M.G., M.D., Ch.M., F.R.C.S. Ed. and Eng.
Royal 8vo. 456 pp. 2 Plates, 166 Illustrations. 30s. net.
LANCET.—"The book is packed with accurate clinical observations and bears evidence throughout of extensive clinical experience and wide reading on the part of the author."
Wm. Heinemann (Medical Books) Ltd., 20, Bedford-street, London, W.C.2.

¶ It will assist in the understanding of the practice of medicine
JUST PUBLISHED. Price 13s. 6d.; postage 6d.
THE MEANING OF DISEASE
By WM. A. WHITE, A.M., M.D.,
¶ A medical book of a most unusual character, and calculated to start the medical man toward some basic thinking about his profession. It is full of new ideas.
Baillière, Tindall & Cox, 7 & 8, Henrietta-st., Covent Garden, W.C.2.

NOW READY. 4/6 net.
THE TREATMENT OF
CHRONIC DEAFNESS.
BY THE ELECTROPHONOÏDE METHOD OF ZUND-BURGUET.
By GEORGE C. CATHCART, M.A., M.D.,
Consulting Surgeon to the Throat Hospital, Golden-square.
Oxford University Press, Amen House, London, E.C.4.

JUST ISSUED.
STEVENS'
PRACTICE OF MEDICINE.
SECOND REVISED EDITION.
See Saunders' Advertisement on Page 5.

THE SCIENTIFIC PRESS
beg to announce the publication this month of a
THIRD EDITION OF
WANSEY BAYLY'S VENEREAL DISEASE:
ITS PREVENTION, SYMPTOMS AND TREATMENT.
This edition has been brought completely up to date and contains various important additions and improvements, including three coloured plates.
Pages 230. Price 10s. 6d. Illustrations 72.
Faber & Gwyer, Ltd., 24 Russell-square, London, W.C.1.

INFLUENZA
ESSAYS BY SEVERAL AUTHORS.
Edited by F. G. CROOKSHANK, M.D. (Lond.), F.R.C.P.
Royal 8vo. 542 pp. Price 12s. 6d. net.
CLINICAL JOURNAL:—"The most complete account of the subject in our language."
Wm. Heinemann (Medical Books) Ltd., 20, Bedford Street, London, W.C.2.

By O. LEYTON, M.D., D.Sc., F.R.C.P.,
Physician to the London Hospital.
TREATMENT OF DIABETES MELLITUS
FOURTH EDITION.
NOW READY. Price 6s. net (Postage 3d.)
Adlard & Son, Limited, 21, Hart Street, London, W.C.1.

A HANDBOOK OF RENAL SURGERY
By F. McG. LOUGHNANE, F.R.C.S.
Hon. Surgeon, St. Mary's Hospital, Plaistow; Hon. Ass. Surgeon, All Saints' Hospital for Genito Urinary Diseases; Visiting Urologist, St. Mary Abbot's Hospital, Kensington.
With Illustrations. 8vo. 10s. 6d. net.
Longmans, Green & Co., Ltd., 39, Paternoster-row, London, E.C. 4.

NEURITIS AND NEURALGIA.
By
WILFRED HARRIS, M.D., F.R.C.P.,
Senior Physician to St. Mary's Hospital, and to the Hospital for Epilepsy and Paralysis, Maida Vale.
Cloth. Demy 8vo. 436 pages. Illustrated. Price 12s. 6d. net.
Oxford University Press, Amen House, London, E.C. 4.

¶ The most complete book on enzymes published.
WAKSMAN & DAVISON'S ENZYMES.
THEIR PROPERTIES, DISTRIBUTION, METHODS AND APPLICATION.
¶ In this work special attention has been paid to the occurrence and preparation of enzymes and to the methods for the measurement and practical application of enzymatic activity—phases of the subject which are frequently overlooked in other treatises on the subject.
Royal 8vo. Pp. x + 364. Price 25s.; postage 9d.
Baillière, Tindall & Cox, 7 & 8, Henrietta-st., London, W.C.2.

LIBRARY OF CONGRESS MAR 18 1927 MEDICAL DIVISION

THE GENITO-URINARY MFG. CO., LTD.,

NEW SELF-RETAINING SUPRA PUBIC DRAINAGE TUBE.

Moulded in one piece with 4 wings. *ANGLED AND STRAIGHT.*

64, GREAT PORTLAND STREET, LONDON, W.1.

Telephone: Museum 2374. Sole Agents for: J. EYNARD, Paris. *Telegraphic Address:* "Cystoscope, Wesdo, London."

ORDER ZŌPLA STRAPPING—ALWAYS!

The one really satisfactory plaster, self-adhesive, does not irritate, has a powerful grip, so does not slip. On strong cloth and on felt, &c.

SAMPLES ON REQUEST - ALL SIZES SOLD

Use also our Holland Strapping—still the best.

LESLIES LTD., High Street, Walthamstow, LONDON, E.17.

Schering

Hyperacidity, etc.

IN this simple but troublesome condition, neutralization of the excess acid by means of an alkali is usually followed by overstimulation of the gastric glands, and thus a vicious circle is established.

Neutralon, a new synthetic aluminium silicate, overcomes this difficulty in a very satisfactory manner. Its neutralizing action is not followed by increased stimulation, and even sodium bicarbonate can be administered with it without producing this undesired effect.

NEUTRALON undergoes slow decomposition in the presence of weak hydrochloric acid, splitting up into silicic acid—which, together with the unaltered Neutralon, adheres to the mucosa and forms a protective covering—and aluminium chloride, which, by its astringent action, restrains over-secretion.

It will be readily seen that it produces an analgesic effect.

In addition to hyperacidity and hypersecretion, Neutralon is indicated in gastric and duodenal ulcers, etc.

Neutralon

TRADE MARK

Samples and literature on application to

SCHERING LIMITED, 3, Lloyd's Avenue, LONDON, E.C.3

THE LANCET

No. 5401. LONDON, SATURDAY, MARCH 5, 1927. CCXII.

CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT.

HUNTERIAN ORATION on the Value of Modern Methods of Investigation in the Diagnosis and Treatment of Hæmaturia. By W. GIRLING BALL, F.R.C.S.—*(Illustrated)* 473

HUNTERIAN LECTURE on Recent Advances in the Surgery of Hernia. By Prof. E. M. COWELL, M.D., F.R.C.S.—*(Illustrated)* .. 478

ORIGINAL ARTICLES.

Control of Scarlet Fever in a Children's Hospital. By D. MCCLEAN, M.B., B.S. 483

Malarial Therapy in General Paralysis of the Insane. By JOHN P. STEEL, M.D., and J. ERNEST NICOLE, L.M.S.S.A. 484

The Nature of Thyrotoxic Myocarditis. By J. STRICKLAND GOODALL, F.R.C.S., and LAMBERT ROGERS, F.R.C.S.—*(Illustrated)* 486

CLINICAL AND LABORATORY NOTES.

Diabetes Insipidus occurring in a Case of Lymphatic Leukæmia of Aleukæmic Type. By J. H. SHELDON, M.D.... 489

A Case of Multiple Aneurysms of the Splenic Artery. By J. ALLAN BERRY, M.S., F.R.C.S. —*(Illustrated)*..... 490

Cerebellar Abscess in an Elderly Woman. By W. S. THACKER-NEVILLE, M.D., F.R.C.S. 490

MEDICAL SOCIETIES.

Medico-Legal Society: Cases of Medico-Legal Interest in the Practice of Gynæcology..... 491

Royal Society of Medicine: Sections of Medicine and Diseases of Children: The Serum Treatment of Scarlet Fever 493

Post-Graduate Hostel: Chronic Ulcers of the Tibia 494

Royal Academy of Medicine in Ireland: Section of Obstetrics 495

Edinburgh Obstetrical Society 496

James Mackenzie Institute for Clinical Research.... 496

REVIEWS AND NOTICES OF BOOKS.

Artificial Light Treatment of Children. By Katherine M. L. Gamgee, M.R.C.S..... 497

X Ray Apparatus, its Arrangement and Use. By P. K. Bowes, M.A., B.Sc. 497

Handbuch der Tuberkulose —Fürsorge. By Dr. Karl Heinz Blümel and others 497

Anatomie Medico-Chirurgicale de l'Abdomen: III., la Region Lombaire et le Petit Bassin. Par Raymond Gregoire 498

A First Course in Hygiene. By Robert A. Lyster, M.D., D.P.H. Revised and enlarged by Col. R. J. Blackham, M.D., D.P.H. 498

The Normal Child. By B. Sachs, M.D. 498

Solubles ou Insolubles, le Benzo-Bismuth en Syphilithérapie. Par le Dr. Henri Drouin 498

LEADING ARTICLES.

PROGRESS IN RESEARCH ON FOOT-AND-MOUTH DISEASE 499

QUALIFYING EXAMINATIONS FOR NURSES 499

HEALTH IN INDUSTRY 501

THE LISTER CENTENARY .. 502

ANNOTATIONS.

Dental Caries in Babies.... 502

The Natural Duration of Cancer..... 503

Development of Lower Part of Vagina 503

An American Epileptic Colony 503

The Injection of Foreign Inert Particles into the Blood 504

Antonio Cardarelli 504

Psychical Research 505

Rationale of Wassermann Reaction 505

Transfusion 505

Small-pox in Monmouthshire and Yorkshire 506

MODERN TECHNIQUE IN TREATMENT.

CCXIII.—The Treatment of Uræmia. By T. L. HARDY, M.D., M.R.C.P. 506

SPECIAL ARTICLES.

Medical Research Council: Annual Report for 1925–26—*(Concluded.)* 508

Medicine and the Law: Professional Expulsions.— —Osteopath's Unsuccessful Claim for Fees.— Electrical Treatment by Automatic Machine 510

The Centenary of University College, London . 511

Infectious Disease in England and Wales 522

CORRESPONDENCE.

The Cancer Problem and the Education of the Public (Dr. Stanley Wyard).... 513

The Blood-Groups of "Identical Twins" (Dr. Douglas A. Mitchell).... 513

Ventilation in the Home (Dr. J. S. Owens)..... 514

Jenner's Real Claim (Mr. H. H. Taylor, J.P.)..... 514

Contraceptives, Methods in Common use Compared (Dr. Hugh A. Fawcett).. 516

The Ætiology of Cardiospasm (Mr. H. Bailey).. 516

Ophthalmic Benefit (Dr. Alex. G. Lumsden)..... 516

An Appeal for Support (Dr. D. T. Barry) 517

Hunter and Abernethy (Dr. Richard Gillbard) 528

PARLIAMENTARY INTELLIGENCE.

Notes on Current Topics: Dr. Haden Guest 517

House of Lords: Lead Poisoning—Sir T. Legge's Resignation.—Lunacy and Mental Disorder.... 517

House of Commons: Medical Officers at Naval Recruiting Centres —Accidents in the Air Force. — D.C.M.S. and Treatment of Pensioners. —Education Authorities and Mentally Defective Children.—Serum Treatment of Scarlet Fever.— Financial Position of Approved Societies. — The Hours Convention. —Indian Medical Service 520

THE SERVICES.

The Director-General, R.N. —Temporary Commissions at Home Stations in the R.A.M.C.—Royal Naval Medical Service.— Royal Army Medical Corps.—Royal Air Force 512

MEDICAL NEWS.

University of Oxford 523

Society of Apothecaries .. 523

University of London..... 523

Royal Coll. Surg. Eng. 523

Soc. of Members of Roy. Coll. Surg. Eng. 523

Victoria Infirmary, Glasgow 488

New Hospital Scheme at Liverpool 488

West Kent Med.-Chir. Soc. 498

Epsom College..... 506

Federation of the Health Resorts of France..... 517

Royal Medical Benevolent Fund 522

Pharmaceutical Society .. 523

Industrial Health Education Society 523

Inquests in London 523

Chadwick Lecture 523

Memorial to Sir Patrick Manson 523

London Fever Hospital . 523

Cambridge Graduates' Medical Club 523

Birmingham's Cripples.... 523

Fellowship of Medicine and Post-Grad. Med. Assoc. 523

Dental Care of Liverpool School-children 524

Walsall Maternity Home.. 524

Gift to University of Edinburgh 524

Shortage of Radium in Liverpool 524

Rebuilding Scarborough Hospital 524

Voluntary Hospital Policy. 528

Ophthalmology in Dorset . 528

NOTES, COMMENTS, AND ABSTRACTS.

The Galton Lecture on Mental Disease in Relation to Eugenics. By A. F. TREDGOLD, M.D. . 526

United States Medical Services 528

Medical Diary 524

Appointments 525

Vacancies 525

Births, Marriages, Deaths 525

SANTONIN B.P.14

SANTONIN is the cheapest anthelmintic in practice. The high percentage of complete cures effected by small doses renders the cost of treatment practically negligible.

There are now sufficient stocks of Santonin to meet all demands at prices which permit its free use even for patients of limited means. Our price for wholesale quantities is about 1d. per grain.

IMPORTANT FACTS ON THE PHARMACOLOGY OF SANTONIN.

(1) SANTONIN is the only drug which can claim to be a specific anthelmintic.

(2) SANTONIN is absolutely harmless; it produces no injurious effects on the human organism, does not irritate the intestine nor cause degeneration of the liver and kidneys. (Other drugs expel a certain number of worms by virtue of their general toxic properties, but they are often more toxic to the host than to the parasite.)

(3) SANTONIN does not expel worms merely by contact with the parasites; it is partly absorbed by the host and again excreted through the intestinal walls, driving before it the worms embedded on the mucosa of the intestine.

(4) SANTONIN should not be given with a purge; its efficacy is considerably enhanced if purgation be delayed for at least 12 hours after administration.

(5) SANTONIN should be given at bed-time after a light evening meal.

Full Scientific and Trade Particulars from—

THE EASTERN & RUSSIAN TRADING CO., Ltd., 26, FINSBURY SQUARE, LONDON, E.C. 2.

Telephone: Clerkenwell 1638/1639. Telegrams: Ertcosasto, London.

SANTONIN B.P.14

OXFORD MEDICAL PUBLICATIONS

Telegrams: OXUNIPRES, CENT. LONDON.

Telephone: CITY 8960. Extension Dept. R

NOW *READY.*

AN ILLUSTRATED GUIDE TO THE SLIT-LAMP

By T. HARRISON BUTLER, M.A., D.M. (Oxon.), M.R.C.S. (Eng.), L.R.C.P. (Lond.).
Pp. 158. 5 Coloured Plates. 158 Illustrations. 30/- net.

DISEASES OF THE HEART

Their Diagnosis, Prognosis, and Treatment by Modern Methods.
By FREDERICK W. PRICE, M.D., F.R.S. (Edin.).
Pp. 550. 249 Text Figs., 32 Sphygmograms, 92 Polygraphic Tracings, 87 Electrocardiograms. New (2nd) Ed. 21/- net.

THE HEALTH OF THE CHILD OF SCHOOL AGE

By VARIOUS AUTHORS, and with a Foreword by Sir THOMAS OLIVER, M.A., M.D., F.R.C.P., LL.D., D.C.L.
Pp. 204. 6/- net.

HELIOTHERAPY

With Special Consideration of Surgical Tuberculosis. By A. ROLLIER, M.D.
NEW (SECOND) EDITION. Pp. 342. 273 Illustrations. 20/- net.

PRINCIPLES OF PHYSICAL CHEMISTRY for Medical Students

By P. M. TOOKEY KERRIDGE, M.Sc., A.I.C.
With Introduction by Prof. A. V. HILL, M.A., F.R.S. Pp. 146. 22 Illustrations. 5/- net.

COMPRESSION OF THE LUNG in the Treatment of PULMONARY LESIONS

By STUART TIDEY, M.D. (Lond.), M.R.C.P. (Lond.).
Pp. 100. Paper. 3/6 net.

CHRONIC INTESTINAL STASIS

A Radiological Study.
By ALFRED C. JORDAN, C.B.E., M.D. (Camb.), M.R.C.P. (Lond.).
SECOND EDITION. Pp. 246. 315 Illus. 21/- net.

THE ENLARGED PROSTATE

By KENNETH M. WALKER, F.R.C.S., M.A., M.B., B.C.
Pp. 212. Frontispiece in Colour. 59 Illus. 12/6 net.

SELF CARE FOR THE DIABETIC

For the Use of the Diabetic Patient.
By J. J. CONYBEARE, M.C., M.D.(Oxon.), F.R.C.P.(Lond).
Pp. 81. 3/6 net.

THE EARLY DIAGNOSIS OF THE ACUTE ABDOMEN

By ZACHARY COPE, B.A., M.D., M.S. (Lond.), F.R.C.S. (Eng.).
NEW (FOURTH) EDITION. Pp. 250. 30 Illustrations. 10/6 net.
An additional Section dealing with Mesenteric Thrombosis and Embolism is incorporated into this New Edition.

The Treatment of CHRONIC ARTHRITIS AND RHEUMATISM

By H. WARREN CROWE, D.M., B.Ch. (Oxon.), M.R.C.S., L.R.C.P.
Pp. 208. 16 Illustrations. 2 Charts. 8/6 net.

APPLIED PHYSIOLOGY

By SAMSON WRIGHT, M.D., M.R.C.P. With Introduction by SWALE VINCENT, M.D., LL.D., D.Sc., F.R.C.S. Ed. & Canada.
Pp. 438. 37 Illustrations. 15/- net.

A CATALOGUE, alphabetically arranged, and classified by subjects with dates of latest editions, is obtainable free upon application.

The Oxford University Press

HUMPHREY MILFORD Dept. R. (L.), Falcon Sq., London, E.C.1
(And of all Booksellers.)

Hunterian Oration

ON THE VALUE OF MODERN METHODS OF INVESTIGATION IN THE DIAGNOSIS AND TREATMENT OF HÆMATURIA.

Delivered before the Hunterian Society on Feb. 28th, 1927.

BY W. GIRLING BALL, F.R.C.S. ENG.,

PRESIDENT OF UROLOGICAL SECTION, ROYAL SOCIETY OF MEDICINE; SURGEON WITH CHARGE OF OUT-PATIENTS, ST. BARTHOLOMEW'S HOSPITAL.

[Mr. Girling Ball began his lecture with a brief historical review of the methods used in the diagnosis and treatment of urinary disorders. For many centuries, he said, these have been dealt with surgically. A method of removing vesical calculi was described by Celsus as in use amongst the Greeks and Romans. It became known as "cutting upon the gripe or with the lesser apparatus" and remained in vogue until early in the sixteenth century when Johannes de Romanis, of Cremona, is said to have devised the method of "cutting upon the staff or with the greater apparatus." At an early period a distinction was made between urogenital and other surgeons, and in 1634 a dispute arose at St. Thomas's Hospital about the appointment of a certain Mr. Cleeve, "who had been recommended to them for his skill in cutting for stones, in place of a certain Mr. Moby, who showed a singular lack of the same, in addition to the fact that he was rebellious against the King." The art was commonly practised by a special class of "cutters," the cases apparently only being dealt with by a surgeon when "there was money in it." John Douglas and Cheseldon (1719) laid the foundation of the modern operation of suprapubic lithotomy known as the "high operation for the stone." Other landmarks in urogenital surgery were the first transperitoneal nephrectomy by Walcott (1861), after which the patient died on the fifteenth day, and the first successful lumbar nephrectomy in this country by Durham (1872). The date of the first removal of stone from the kidney is uncertain, but Dominique Marchettis performed a two-stage operation for this purpose in 1633, extracting the stone but leaving a permanent fistula. To Henry Morris (1881) is attributed the modern procedure. Litholapaxy was first done by Bigelow (1878); lithotrites were used before his time, but no artificial means of evacuating the fragments had been devised. In 1635 Covillard removed what is described as a growth—possibly part of the prostate—from the bladder. To Albarran must be given credit for surgery of vesical tumours, whilst the first tunnelling operation for prostatic enlargement was done by Hunter (1805). Mr. Ball concluded his historical summary by speaking of the remarkable change in urogenital surgery which followed the discovery of X rays, the introduction of cystoscopy by Nitze, and the use of chemical and bacteriological methods. With modern equipment it is now possible in most cases to arrive at an almost accurate diagnosis of lesions of the urinary tract, and the symptom of hæmaturia affords an excellent example of the value of the methods now available. The lecturer continued as follows:—]

HÆMATURIA AS A SYMPTOM.

Fortunately, hæmaturia is a symptom which, although often neglected by the patient, is usually of sufficient prominence to lead him to call for medical aid. Unfortunately, however, he is not always stimulated by his adviser to undergo thorough investigation, but is treated on expectant lines in order to allay the hæmorrhage instead of discovering its cause.

This may be due to several reasons; one commonly met with is that the bleeding has ceased when he applies for advice to his doctor, who may not sufficiently appreciate that as a symptom it is invariably an indication of the existence of some serious pathological condition. This attitude can be partially understood, especially if the hæmaturia is limited to a single act of micturition, for it is not generally recognised that considerable information can be acquired in the period after the bleeding has ceased. Again, it may be difficult to convince the patient that a single bleeding demands an elaborate examination; but this is so common a feature of cases of intermittent hæmaturia, often of the painless type—due, shall we say, to a growth in the bladder—that an investigation should be insisted upon, thereby avoiding the loss of much valuable time in waiting for a subsequent attack.

Yet, again, to take another example, if the hæmaturia still persists it too often happens that a full examination is postponed until after its subsidence, on the supposition that it cannot be carried out during this period. This, of course, is quite a fallacy; for the ideal period for defining the origin of the blood is while the bleeding continues. These are instances of an error in attitude which are quite commonly met with, and it is an endeavour to correct this attitude that has led me to choose this subject for my address. The advantage to be gained by adopting the use of adjuvant methods of investigation cannot be too strongly emphasised; the waiting for obvious physical signs, so often conspicuous by their absence in cases of hæmaturia, is only to be condemned. It is not my intention to attempt to deal with the diagnosis of hæmaturia, which may be a symptom of almost any disease of the urinary tract, but rather to detail the method of approaching a case of which this symptom is a prominent feature, illustrating these methods by their application to special diseases.

SOURCE OF THE BLOOD.

Hæmaturia varies in degree and within very wide limits; the bleeding may be so small in quantity as to be only recognised by the microscope, or it may be so profuse as to give the urine a bright-red or a smoky appearance, with a heavy brown deposit on standing. It is obviously necessary, in the first place, to prove by microscopic examination that the discoloration is due to blood and not to some other pigment. Having proven that blood is present, and that one is not merely dealing with a case of hæmoglobinuria, &c., the initial effort must be directed to discovering the site of its origin. It is no doubt within the memory of most of us that the distinction between a renal hæmorrhage and one originating in the bladder was, and is even now, by some arrived at by the appearance of the urine passed; the dark coloration and intermixture of the blood with the urine in the one case, and its bright colour, often only at the end of micturition in the other, are often drawn attention to. A rough-and-ready method of distinction it may be, but it should not be recognised as a means of differentiating the site of a lesion, otherwise a wrong conclusion will often be drawn. Even a three-glass test is often inaccurate. The sudden clearance of bleeding after washing out the bladder suggests a renal origin, whereas a persistence of it indicates a vesical lesion. The passage of clots of blood in the form of ureteric casts must be suggestive of a renal bleeding. Examination for the presence of some general constitutional disease must naturally receive adequate attention before concluding that the hæmorrhage is the result of a local lesion. Evidence of renal inefficiency, the presence of arterial disease, cardiac lesions, hæmophilia, scurvy, &c., may be found; but here, again, it must be remembered that evidence of the existence of such general conditions does not necessarily mean that they are responsible for the hæmaturia. This point could not be better illustrated than by the following record:—

Some years ago I was asked to cystoscope a man of 56 years of age who had for many years been treated by

his physician for chronic renal disease. The many attacks of painless hæmaturia which he experienced were regarded as being the result of this condition. One day, however, he had a particularly severe hæmorrhage, which led his doctor to ask for a cystoscopic examination, which demonstrated the presence of a large villous tumour of the bladder, the removal of which caused the bleeding to cease.

True, it is, that this man had chronic renal disease, but the hæmaturia was due to the growth.

In diseases of the urinary tract itself, localising symptoms frequently indicate the site of origin of the bleeding, but even such must be accepted only with the greatest discrimination, for although they suggest that the bladder is the site of the disease, the kidney may, in reality, be the site of its primary focus, the bladder lesion being only secondary to it, and vice versa. A case recently under my care illustrates this point admirably:—

A man, aged 23, had all the symptoms of a vesical calculus, with great pain relieved by rest. His frequent micturition was reduced from 18–6 acts during the 24 hours by putting him to bed. The bright red blood which he passed disappeared immediately from the urine. A cystoscopy, however, demonstrated a tuberculous ulceration around the ureteric orifice and the removal of the kidney on the affected side of the bladder confirmed the diagnosis of renal tuberculosis. This man had never had a symptom which would localise his disease to the kidney, which was an old-standing condition.

Let it not be thought that a record of the symptoms is to be discarded as useless; far be it from me to make any such suggestion, for it is obvious that a great deal of information can be gained by the acquisition of an accurate history relative to the type of hæmaturia, its persistence, its frequency, its amount, and its relation to other symptoms. The mode of onset of the hæmaturia is often suggestive of its cause; its accompaniment with pyuria and persistently increased frequency of micturition points to tuberculosis; a sudden profuse painless hæmaturia indicates the presence of a growth; the association with the symptoms of pain of a certain definite type will often point to the site of the lesion, as in a case of calculus, and so forth. These symptoms give indications, but they by no means enable us to be sure of the site of origin of the bleeding.

THE NEED FOR IMMEDIATE INVESTIGATION.

These remarks will serve to illustrate the necessity of defining as accurately as possible the site of the bleeding focus. Let me go one step further. A physical examination of the urinary tract may define the presence of a renal tumour, for which the presence of a growth or some inflammatory disease may be responsible. A nodule in the testicle may suggest the presence of tuberculosis disease of the urinary tract; an enlargement of the prostate, discovered by rectal examination, may indicate an innocent or malignant growth of that organ; but many of these findings are only obvious in the later stages of the disease of which they are the evidence. Surely, an attempt should be made to arrive at a diagnosis ere a tumour of the kidney is palpable, or a secondary focus from a tuberculous kidney appears in the testicle, and the opportunity for doing so is often available. Hæmaturia is often the only sign and the first evidence of these conditions and may precede the major manifestations by many weeks or months. It is to this period that we should direct our attention, and then the only means of obtaining the information required is by the use of the cystoscope.

Cystoscopy during Hæmorrhage.

As already stated, it is very disappointing in practice to find that the impression still prevails that a cystoscopic examination cannot be carried out during the period of bleeding. No doubt this results from the recollection of the experiences of those who remember the time when the performance of cystoscopy required the preliminary cleansing of the bladder through a catheter, thereby allowing an interval for the medium introduced into the bladder to become sufficiently turbid to prevent a proper view being obtained; but with the use of the modern catheterising cystoscope this difficulty is avoided. Now, it is obviously a material advantage to make the examination during the period of bleeding; indeed, the loss of an opportunity of doing this may be of exceeding importance in prognosis. If the source of hæmorrhage is in the bladder, the technique available enables one almost invariably to obtain a satisfactory view of the condition present, but even if this is not possible at the first investigation, it is at least presumptive evidence that the lesion is in the bladder and can be left for further investigation during a quiescent period, or dealt with as circumstances demand. If, on the other hand, the blood is coming from one or other ureter, thereby proving that it or the kidney is the source of the hæmorrhage, the bladder can always be sufficiently cleansed to recognise this fact. Unfortunately, the circumstances too often are not so favourable, for the case may only come under observation during the period after or between two attacks of hæmaturia. It is true that bladder lesions, such as papillomata, carcinomata, tuberculous ulcerations, or enlargements of the prostate, can, during this period, still be readily diagnosed; and in the case of tuberculosis, or other chronic infections of the kidney, the recognition of characteristic lesions collected around one ureteric orifice will indicate which kidney is the original site of the disease. Abnormal appearances of a ureteric orifice are useful guides of renal disease. But the real difficulty lies in defining the site of the lesion in the absence of hæmaturia or of an indicator in the bladder. The natural tendency is to wait for a recurrence of the bleeding, especially if the ordinary physical signs give no indication of the presence of disease; but this is an incorrect attitude to adopt.

Let us consider the case in which at the moment of investigation the urine shows no abnormality, allowing that the same procedure would be adopted if the circumstances permitted, during a period of bleeding.

PRELIMINARY RADIOGRAPHY.

The assistance of the radiographer is first sought; even in the absence of other symptoms, the exclusion or demonstration of a calculus, or any other abnormality capable of casting a shadow is essential. Attention need hardly be drawn to the necessity of a proper preliminary treatment of the patient before radiographic examinations are made, especially with reference to the cleansing of the bowel; by this means shadows which may be caused by foreign bodies in that tract are excluded. The close coöperation between the surgeon and the radiographer is of primary importance.

Photographs of the whole of the urinary tract should be taken, no matter which portion is suggested by the symptoms as being the site of the lesion. The identification of a true renal, ureteric, or vesical calculus is, as a rule, beyond doubt; but occasionally difficulty arises and misinterpretation of the findings results in improper methods of treatment. It often happens, for example, that shadows are demonstrated whose mere association with an attack of hæmaturia suggests the presence of a calculus, whereas the physical characters of the shadow do not fit in with those usually expected of it. To avoid a misinterpretation of these appearances the greatest care must be taken, and it is here that the coöperation mentioned is of the greatest value. Take the case of a patient who has a single large shadow in the right hypochondrium, demonstrated in a picture taken in the antero-posterior axis as lying exactly over the renal area, but which has the ringed outline so characteristic of a gall-stone. Gall-stones of this type can usually be recognised, but their association with hæmaturia naturally biases an opinion in favour of a renal calculus. I have actually seen such a case in which the surgeon explored for a renal stone on this misapprehension, and only the failure to find it led him to explore the gall-bladder and remove a gall-stone.

The taking of pictures in a lateral combined with the antero-posterior axis will avoid mistakes of

this kind by showing the relationship of the shadow to the abdominal wall, if not actually to the kidney itself; or pictures may be taken stereoscopically. In the case of large stones, if they can be seen, the screen examination will serve the same purpose, and the mobility of the shadow, in relation to the viscus suspected of containing it, defined.

Foreign material in the appendix and calcareous lymphatic glands lying along the course of the ureter or in the mesentery are frequent causes of error, although, as a rule, their radiographic appearances are usually sufficiently characteristic to distinguish them. These shadows are usually small, but may be considerable in size, and even simulate the appearances of calculi. (Fig. 1.) They are usually situated in the right iliac fossa, but may be found in almost any position in the abdomen, even as high as the renal area. From their physical characters, radiography may be quite sufficient to define their nature. Apart from their appearance, manipulation of the abdomen while the patient is being X rayed, or even a change of position, may give a degree of mobility to the shadow which would be quite impossible with a calculus within the urinary passages. This finding naturally conduces to setting aside the diagnosis that the calcareous gland is responsible for the hæmaturia. This may be true, but, on the other hand, it must be remembered that although this particular gland may not be related to the ureter, there may be some actively inflamed glands not showing calcareous degeneration more intimately attached to it.

FIG. 1.

Mass of tuberculous glands shown by X rays, associated with hæmaturia and resembling calculi.

Again, pelvic phleboliths are commonly demonstrated by the radiographer. A single shadow associated with hæmaturia naturally suggests the presence of a stone; where there are many such shadows, one of them can often be picked out as having different characters from the rest, and be regarded as a stone fragment.

It is thus evident that in a case of hæmaturia ordinary radiographic methods may be sufficient; but, on the other hand, they may fail to give a certain diagnosis of a calculus. Moreover, they may fail to demonstrate any shadow at all. Under both these circumstances further investigations are required, unless another attack of hæmaturia is awaited which, as already stated, if possible, is to be avoided.

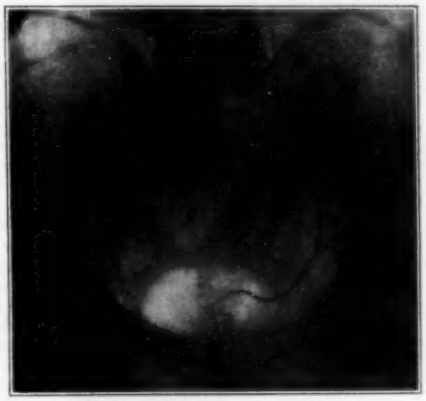
DIFFERENTIAL DIAGNOSIS OF RENAL CALCULI.

Let us first take the case in which the shadow is demonstrated, but of the nature of which there is doubt. The simplest addition to the radiographic investigation consists in the passage of a ureteric bougie composed of material opaque to the X rays. (Fig. 2.) This will define the connexion of the shadow with the course of the ureter or the renal pelvis, especially if a stereoscopic picture is taken.

The shadow of a stone within the lumen of the ureter may be of sufficient size to block the passage of the bougie altogether, and all doubt is dissolved. But this may not be the case; the bougie may pass and unless the shadow is displaced—thereby indicating the presence of a stone—this will not necessarily exclude a calcareous gland adherent to the walls of the ureter. A gland, by its adhesion, may so alter the position of the ureter and prevent the passage of a bougie, but this is not common. Under these circumstances some opaque fluid, such as sodium bromide, is passed into the ureter through a ureteric catheter, causing distension of it and of the renal pelvis. (Fig. 3.) This will mask a shadow in the renal pelvis or within the ureter; moreover, it will demonstrate any secondary changes of either, such as stricture of the former or dilatation of the latter. Yet, again, it will clearly demonstrate the external relationship of any shadow caused by lesions outside the tract; furthermore, its distance from, or close attachment to, the ureter will indicate the possibility of its being the cause of the hæmaturia.

These illustrations will suffice to indicate the use of those methods when a radiograph has demonstrated a shadow.

FIG. 2.



Relationship of opaque bougie to prostatic calculus.

FIG. 3.

Pyelogram of normal pelvis showing external relationship of shadows of tuberculous glands, reported on as renal calculi, owing to association with typical symptoms of stone.

Calculi Translucent to X Rays.

Now let us turn to the case in which a stone is suspected as being the cause of the hæmaturia, but in which it is not demonstrated by radiography. This is an uncommon event, as, with the exception of the rare stone of pure uric acid formation, calculi are usually demonstrable; cases are, however, met with from time to time in which the calculus, though

present, has not been discovered even after repeated radiographic examinations. Renal stones lie within the pelvis or in one of its calyces, and quite early in the course of the symptoms, for which they are responsible, cause a distension of the calyces without altering the shape of the pelvis, except by their own shape; this ballooning of the calyces is a characteristic feature readily demonstrated by a pyelogram. (Fig. 4.) I have on at least two occasions removed a renal stone, the existence of which was only recognised by this appearance.

FIG. 4.

Typical pyelogram of early calculus hydronephrosis.

This observation is of some importance, for the pyelographic shadow, due to an obstruction of the ureter or renal pelvis by some extra tract lesion, demonstrates a distension of the renal pelvis without, in the early stages, affecting the calyces. This deformity is associated with such conditions as movable kidney, congenital hydronephrosis, and hydronephrosis associated with abnormal renal vessels (Fig. 5), and even strictures or deformities of the ureter due to the adhesion of calcareous lymphatic glands or adherent appendices. The symptoms produced by these conditions may very closely simulate those of a calculus, even to the production of an attack of hæmaturia, presumably due to congestion of the renal tissue beneath the pelvic mucosa. Thus it is seen that a pyelographic examination may be, apart from an exploratory operation, the only means of distinguishing such conditions.

FIG. 5.

Typical early hydronephrosis associated with abnormal renal artery.

Before leaving the question of stone, it is desirable to emphasise the fact that where multiple calculi are present a radiograph does not necessarily show up the whole number present. I myself have removed 13 stones from a renal pelvis which showed the existence of 11 on radiographic examination and subsequently, after nephrolithotomy, demonstrated the presence of a further 12. Misinterpretation of this kind has to be looked for and may be unavoidable. A distension of the renal pelvis with fluid, which need not for this purpose be opaque to X rays, may break up a collected mass of small calculi and demonstrate their multiplicity and by rearrangement bring into view many that were not previously seen.

This examination was used with some satisfaction on one occasion when multiple shadows shown by the X rays were thought to be due to calcareous glands. Distension of the renal pelvis with sodium bromide showed a typical calculus hydronephrosis. When the fluid was run off a second picture showed that the fluid had split up the shadows into still further fragments, thereby confirming the diagnosis.

NEOPLASMS OF THE KIDNEY.

Hæmaturia is often the only symptom and sign of renal growths. The bleeding, in contra-distinction to the conditions already mentioned, is often sufficiently profuse and persistent to cause a rapid onset of a secondary anæmia. This is suggestive of the presence of a growth especially if the bleeding is seen to arise from one ureteric orifice. With large growths, and in the later stages, simple radiographic examinations may demonstrate a big kidney. In the absence of bleeding, however, the question naturally arises as to whether pyelography will enable us to recognise the presence of a growth in its early stages. Sometimes a diagnosis can be accurately made by this means; it may be necessary to investigate both kidneys if there are no other symptoms suggesting which is at fault. Growths of the renal parenchyma have, even in the early stage, a tendency to bulge into the renal pelvis rather than to extrude from the surface of the kidney. In this way they splay out and elongate the calyces in a characteristic Y-shaped formation. (Fig. 6.).

FIG. 6.

Typical pyelogram associated with growth of the renal parenchyma.

In the later stages growths of the renal pelvis, which are rarely seen, likewise tend to fill up the pelvis and thus prevent the introduction of any fluid into its cavity. In the earlier stages an irregular filling defect is suggestive of a papilliferous growth of that structure. Sometimes such growths are associated with papillomatous growths in the bladder, which can be observed cystoscopically. A unilateral renal hæmaturia seen to be coming from a ureteric orifice, in the neighbourhood of which is a villous tumour, should suggest that this is secondary to a similar condition in the pelvis of the kidney.

INFECTIONS OF THE URINARY TRACT.

So far we have discussed cases in which, apart from containing blood, the urine shows no abnormality and during periods of intermission there has been no unusual constituent to suggest the presence of a lesion. There are other cases, however, in which, with the disappearance of the bleeding,

abnormal substances remain. Pyuria, for example, may be found. This, obviously, may be due to any of the conditions already described, and the same methods of investigation are called for; but, in addition, the bacteriologist becomes a powerful ally; the isolation of the bacteria of infection will often give important information.

In the first place, the nature of the micro-organism may be indicative of the type of lesion in the kidney; it may indicate that it is secondary to a primary focus in some other part of the body, the existence of which was hitherto unsuspected. The finding of the *Staphylococcus pyogenes aureus*, for example, may be evidence of an infarct in the kidney secondary to a boil on the neck; whilst typhoid infections of the urinary tract are not uncommon complications of enteric fever. On the other hand, by its specific nature in the case of a primary lesion of the kidney, it may indicate the exact nature of that lesion. The finding of the tubercle bacillus after one or more examinations, or after inoculation of an animal, with a centrifugalised deposit of the urine, is an illustration of this type; even if the bacilli are not found, a sterile urine should lead to a suspicion of their presence.

Tuberculosis.

Such findings as these are important, but the problem of discovering the source of the bacteria is the same. In this connexion tuberculosis affords an excellent example. A bilateral disease is not amenable to surgical treatment; a unilateral infection is a satisfactory condition to deal with. Is it possible, therefore, to differentiate between these two? A cystoscopic examination is the most useful aid in our possession, as it may demonstrate areas of congestion, tubercles, ulcers, œdema, dragging upwards of the orifice or rigidity of the margins of one ureter, thus indicating which kidney is the site of the primary focus of infection.

Interpretation of the view obtained may be difficult, for if a considerable area of the bladder is involved, both ureteric orifices may be included in the tuberculous cystitis. This naturally leads to the inference that the disease is involving both kidneys. It must be remembered, however, that this is not necessarily the case. A period of rest may so alter the appearance seen that a re-examination at a later date may show that a suspected bilateral infection is really limited to one kidney. The finding of these lesions is of the greatest assistance in diagnosis, but they may not be present. The occasion sometimes arises when the bacilli are found in the urine and there is no indication which kidney is involved. There may be no localising signs indicating which is the seat of disease, for quite commonly a kidney may be considerably destroyed by tuberculosis without giving any evidence that it is affected; this is supported by the frequency with which a case of tuberculous nephritis fails to come under observation prior to the onset of vesical symptoms. Catheterisation of the ureters may give the necessary proof; the presence of purulent sterile urine collected from one side and not from the other may serve as an indicator; again, by a lucky chance, bacilli may be isolated from one such specimen and not from the other.

Radiography may demonstrate caseous or calcareous deposits. Pyelography may be tried, although it is not a particularly desirable condition in which to use this method of investigation; the rupture of a cortical abscess into the renal pelvis may demonstrate an irregularly shaped calyx or an irregular margin to the renal pelvis, which may be sufficiently suggestive. If these investigations fail, the use of the tests of renal function may be applied to each kidney. Apart, however, from the ordinary chemical and bacteriological investigations, as a means of differentiating the function of the two kidneys, little value can be attached to these findings. The dye test, it is true, may indicate from time to time the presence of a gross lesion in one kidney, but as a means of diagnosis its value is uncertain. It is in this attitude that they must be utilised. In the absence of these findings, as a rule it is necessary to await events. The diagnosis of the site of a tuberculous focus in the urinary tract, in the absence of macroscopic lesions, which can be seen, may thus be very difficult.

Non-tuberculous Infection of the Kidney.

Lastly, let me add a few remarks with regard to the diagnosis of renal infections other than tuberculosis. Acute infections of the urinary tract, apart from those associated with other pathological conditions, are so commonly met with that the symptoms they produce enable their easy recognition. Little, however, is known of their exact origin. Sometimes, especially in severe acute infections, there is evidence of involvement of the kidney; in these cases, the vesical symptoms are the most evident; and yet again there may be few symptoms, except fever, the presence of a urinary infection only being discovered by an examination of the urine.

It is generally presumed that these infections are of hæmatogenous origin, the initial foci being found in the bowel, the tonsil, the air passages or elsewhere. A complete recovery from such an infection is not uncommonly seen, but there is a tendency for it to persist or become recurrent, which naturally raises the question whether there is not some factor in the urinary tract itself which predisposes to these sequelæ.

A bilateral infection is presumably frank evidence of a generalised infection. Before assuming that it is of this nature, however, it is necessary to demonstrate that there is no obstructive lesion below the entrance of the ureters into the bladder, either within the tract or in the pelvis—e.g., an enlarged prostate, a urethral stricture, fibroids, the pregnant uterus, or inflamed tubes. A unilateral infection, although it may be of like origin, might reasonably be expected to depend on some localising factor. It is surprising how often it is possible to demonstrate the presence of some obstructive lesion by the methods of investigation already enumerated. Obvious illustrations of these are the cases of early hydronephrosis associated with a movable kidney or an abnormal renal vessel.

This being so, it is a necessary corollary that in such cases abnormalities should be sought for. In dealing with a case of urinary infection it is important to discover, if possible, the presence of some associated factor within the tract itself, for it is difficult to believe that an infection can persist in a normal urinary tract. This argument may be carried still further to prove that in some cases structures outside the tract—for example, the appendix and the large bowel—may involve it in the process of their diseases and cause the maintenance of an infection I have recently recorded a group of this type, included amongst which is the following case which serves as an excellent illustration of this point, and shows the necessity for the procedures here advocated in connexion with urinary infections:—

> A woman, aged 46, suffering from a sufficiently severe hæmaturia to cause a marked secondary anæmia and extending over a period of six weeks, was passed through the ordinary methods of investigation with negative results, beyond the fact that the blood was seen to be derived from the right ureter. A pyelogram demonstrated the presence of a considerable early hydronephrosis, the cause of which was not obvious, except, possibly, a kink at the ureteropelvic junction. The urine at this time was sterile. A lumbar exploration failed to demonstrate anything abnormal except the conditions above mentioned. However, the hæmorrhage had been so severe that a nephrectomy was performed. Imagine my chagrin to find that the hæmaturia persisted and did so until three months later, when the patient returned with infected water and a typical attack of acute appendicitis. With the removal of the appendix the hæmaturia and the infection ceased.

This case serves to illustrate that one must not even be content to examine only the urinary

passages, but must carry out investigations of those structures which lie in its neighbourhood.

The routine procedure so commonly adopted in the treatment of urinary infections—namely, the institution of free diuresis, the use of urinary and alimentary antiseptics, and the introduction of vaccine-therapy—are, to my mind, to be deprecated until a thorough search for the presence of some factor predisposing to the incidence, the recurrence or the persistence of such infection has been sought for. Of course, these investigations will from time to time fail to elucidate such a cause, which may remain undiscovered until some exploration is made or some incidental condition, such as occurred in this case, accidentally defines its presence; the finding of such a lesion may save our patients years of useless treatment.

ESSENTIAL OR IDIOPATHIC HÆMATURIA.

There are many other causes of hæmaturia which might be discussed, but they need not be referred to here, as the mode on investigation is common to them all. The aid of the cystoscopist, the radiographer, the pathologist and the chemist may all be necessary to our service, thereby demonstrating the necessity of good team work; with this tract the results show how valuable this collaboration may be, and how far it is possible to be almost accurate in the diagnosis of a given case. Still, even with all these means of diagnosis, there remains one group which must be mentioned, for which no cause for the bleeding is discoverable; to this the term "essential" or "idiopathic" hæmaturia is applied.

This used to be a fairly common diagnosis, but owing to our better equipment it is fast disappearing, as some responsible cause can be defined in many cases which hitherto would have been so grouped; one of the causes mentioned above was found after removal of the kidney; chronic nephritis was shown to be present in others, although clinically the patients showed no evidence of that condition. But still, occasionally, kidneys bleed and are removed which show no discoverable lesion even after the most careful microscopic investigation, and more surprising still, the source of the bleeding often is not found. In some instances, minute nævi have been demonstrated of so small a size as to be missed by one trained observer and found by another; probably this is the explanation of others. Practically, it is not possible to recognise such lesions before the removal of the kidney, nor will it be possible until some genius invents an instrument through which the interior of the pelvis can be observed.

IMPROVED STANDARD OF TREATMENT.

The introduction of all valuable methods of investigation must necessarily lead to an improvement in our methods of treatment. It is indeed interesting to compare the ease and certainty with which a stone of the kidney can be demonstrated and removed by pyelotomy with the problematical finding of our forefathers, amongst whose equipment was found a knitting needle with which to prod the kidney tissue to demonstrate the existence of the calculus, to be followed by an incision through the so-called bloodless line, inevitably causing severe damage to the kidney, often serious hæmorrhage, and possibly a subsequent nephrectomy.

It is now possible to demonstrate by pyelography the degree of damage of the renal tissue caused by the stone, so that the surgeon, prior to the operation, may know whether or not a nephrectomy will be required. In the case of a very small stone, where he may mistrust his ability to find it, he can actually demonstrate by the same investigation the site of the calyx containing it. The introduction of the tests for renal function in cases of enlargement of the prostate, thereby demonstrating the damage done to the renal tissues by obstruction, has led us to select only such cases for an immediate prostatectomy in which the function of the kidneys can reasonably be expected to withstand the serious effects of the operation and to deal with the remainder by a two-stage operation. It has also taught us to be cautious in recognising the presence of two kidneys and to avoid the removal of the only or the only functioning kidney. The demonstration of an early hydronephrosis has enabled us to carry out such procedures as will prevent the more complete destruction of the renal tissue which would otherwise have been inevitable, and the formation of those enormous cysts which might be mistaken for a similar lesion associated with the ovary. Pyelographic examinations have also enabled us to recognise the existence of a malignant growth of the kidney at a stage with a reasonable chance of complete eradication, which would otherwise not have been demonstrated except by an exploratory operation or by the finding of a large tumour beyond the hope of removal.

These are some of the advantages in which the modern methods of diagnosis of genito-urinary conditions have led to more efficacious means of treatment; but perhaps of still greater interest, certainly to the public, has been the introduction of methods of treatment by intravesical procedure, thereby avoiding cutting operations which are hated by man and lead to the loss of much valuable time, which is bound to be of an important consideration to the worker. It needs only to mention the removal of vesical stones by lithotrity, the destruction of villous tumours of the bladder by fulguration, the encouragement of the expulsion of ureteric calculi by the passage of bougies or the introduction of oil and drugs through a ureteric catheter, the destruction of portions of the prostate by diathermy in cases not suitable for the major operation or where there is some special indication pointing out its advantage.

Surely, the advances which have been made and those within such a short period of time would have been after the heart of the great master whose name this lecture commemorates.

Hunterian Lecture

ON

RECENT ADVANCES IN

THE SURGERY OF HERNIA.

Delivered before the Royal College of Surgeons of England on Feb. 16th, 1927,

BY ERNEST M. COWELL, D.S.O., M.D. LOND., F.R.C.S. ENG.,

HUNTERIAN PROFESSOR OF THE COLLEGE; SURGEON TO CROYDON GENERAL HOSPITAL.

THE surgical history of hernia dates back to time immemorial, the subject being referred to in the earliest writings of our craft. There have been three main periods, according to the method of operative treatment employed.

1. *The Age of Herniotomy*, when the sac was excised and ligatured. Celsus and Galen, in the first and second centuries A.D., described and practised this procedure. At this time hernia was thought to be due to a "rupture" of the peritoneum. Paulus Aegineta, of Alexandria, in the seventh century A.D., taught that the condition was not due to a sudden giving way of the peritoneum, but rather to a gradual distension and protuberance. Itinerant herniotomists flourished in the middle ages, men who operated on patients in large numbers and then moved on to the next town.

Pierre Franco and Ambroise Paré in the sixteenth century contributed to our knowledge of the condition. In the seventeenth and eighteenth centuries, when the study of anatomy was being carried out by many skilful observers, several new types of hernia were described, and an extensive literature was compiled by such men as Littré, Petit, de Gimbernat, Richter, &c. Early in the nineteenth century Scarpa in Italy

and Sir Astley Cooper in this country published beautiful atlases of drawings of their hernial dissections.

With the advent of Lister's discoveries surgery received an immense impetus, and open operation became safer and more popular. Annandale in 1876 first operated on femoral hernia by the inguinal route. The number of herniotomy operations multiplied, so that in 1884 Prof. Sir A. E. Barker was able to write a paper on 35 Operations for the Radical Cure of Inguinal Hernia by Original Methods.

2. *Second Period: Herniorrhaphy.*—The second period commenced with the description by Bassini (1890) and Halsted, at about the same time, of a more elaborate procedure for the surgical cure of inguinal hernia. Many modifications and elaborations of these methods have since been described. Anterior and posterior imbrication of the external oblique aponeurosis (E. Wyllis Andrews, Edmund Andrews, Stetten, and others), plication of the fascia transversalis (Pitzman), and other methods of reinforcing the coverings of the canal by suture are still popular, especially in America. In this group of herniorrhaphies may be included the filigree method of Bartlett, popularised in this country by Laurie McGavin. In this type of operation, however, in spite of their complicated technique, the rate of recurrence has remained too high.

3. *Third Period: Hernioplasty.*—Kirschner in 1910 pointed out the fact that free fascial grafts could be successfully employed and he used the method in one case of inguinal hernia. Lewis, Dean, and Davis in 1911 and 1914 published similar observations. It was not till 1921, however, that Gallie and Lemesurier in Canada, reintroduced the subject. These authors employed strips of fascia lata from the thigh and used them to reinforce the weak posterior wall of the inguinal canal. Pedunculated strips of external oblique aponeurosis were used in a similar way by McArthur in 1901, McEachern, and also Adair in 1924, and Wainschenker (1923, published in 1925). In my own method pedunculated autogenous flaps of the external oblique aponeurosis are employed, as will be shown later.

The results of hernioplasty are extraordinarily good. In the present series of 201 hernias no patient has been refused operation on account of age or general condition. Careful follow-up methods have so far revealed a single case of recurrence.

CLINICAL OUTLINES.

I do not propose to enter into an extended discussion of the signs and symptoms of hernia. In the earliest stages the patient complains of symptoms which are due to reflexes from the peritoneum concerned. Thus dyspepsia, epigastric uneasiness, umbilical pain or backache may be met with. Later the local bulging is noticed. The symptoms are usually slight in the case of femoral hernia. A pain which radiates down the inner side of the thigh should lead the observer to suspect an obturator hernia.

On examination of the hernial region swellings may appear, and lateral inspection will reveal whether the inguinal canal is filled or not. The relation of the swelling to the pubic spine must in all cases be accurately determined. Two early physical signs of inguinal hernia are given by Watson: (*a*) Cosens's sign, the alert rectus. The rectus muscle on the affected side is found to be tenser than on the other. (*b*) Watson's sign—painful subcutaneous ring. With the patient erect and head up, pressure over the external rings will cause complaint of pain on the weak side. Lastly, the grip or shutter action of the internal oblique and transversalis muscles should be determined, as pointed out by Sir Arthur Keith.

In the femoral variety of hernia the swelling first appears below Poupart's ligament external to the pubic spine, and thence may extend upwards over the ligament, downwards into the thigh, or outwards along Poupart's ligament.

ANATOMY.

In order to study the blood-supply of the hernial region and to determine the vascularity of the aponeurosis of the external oblique, block dissections were made, injected through the external iliac artery with lead oxide suspension, and then radiographed. In the resulting photograph (Fig. 1) it will be seen that the external oblique aponeurosis itself contains but very few blood-vessels. The fascia which was reflected from its surface and which lies curled up contains a fine network of nutrient vessels. This would at first sight appear to be an important point in the surgery of this region, and an argument against cleaning the aponeurosis before commencing plastic manipulations. However, as will be shown later, cleaned aponeurosis maintains its nutrition through its lymph-supply, and unites better when freed from overlying fascia and areolar tissue.

When the inguinal canal is exposed, the cord having been dislocated and held downwards and outwards, the thickened edge of the transversalis fascia at the abdominal ring comes into view. This edge may be freed and defined by dividing the infundibuliform fascia by blunt dissection. Above and below, the limits of the ring may be determined. The upper border of the ring is usually covered by the muscles, and the lower when retracted exposes the epigastric vessels which should be actually located in all operations for inguinal hernia. The inner margin of the ring is free and will readily allow a finger to be passed into the properitoneal space. The outer margin should be displayed with care, otherwise the spermatic vessels or vas will be damaged. Note the interval between these structures. Torek takes advantage of this space, and in restoring the ring after excision of the sac applies his stitches to unite the opposite margins of the ring between these structures.

Below the epigastric vessels lies a weak or undefended space, the inner wall of the canal, and here a bulge may be noticed even where no direct sac actually exists. This is a common site for recurrence.

All students of anatomy are familiar with the peritoneal fossæ of the hernial regions. A fact which may have surgical significance and which has, I believe, been hitherto overlooked, is that the two little fossæ, the fovea femoralis and the fovea over the obturator canal, lie at the apex of a larger funnel-shaped fossa with the following four boundaries: in front Poupart's ligament, externally the external iliac vessels, internally the obliterated hypogastric (umbilical) artery, and behind the vas or round ligament. This fossa may be termed the quadrilateral fossa.

FREQUENCY OF HERNIAL SACS.

I believe that either an actual or potential oblique peritoneal sac of varying size exists in all subjects. This is shown in Fig. 2, where the cord has been dislocated and is held over to the outer side. On dividing the infundibuliform fascia a white semicircular outline can always be seen, which is the edge of a potential sac. It is not unlike a rising moon in appearance. I have never failed to demonstrate this in post-mortem examinations, and in all my operation cases where an actual hernia was present on one side a potential sac was always found on the other side when it was looked for. When opened the sac always admits at least one finger. In several of the sacs I have found adherent omentum, although there was no history of hernia. This potential sac is an incompletely obliterated processus vaginalis. The usual description of the normal anatomical obliteration of the process that has been accepted up till now does not take into consideration the persistent patency of the proximal half inch or more.

If these observations are accepted it follows that all oblique inguinal hernias are of congenital origin. A study of oblique sacs removed produces further evidence in support of this view, since arrest of closure in the processus vaginalis can be demonstrated at all levels. Specimens taken from operation cases may be shown with: (*a*) a completely patent processus

the "congenital hydrocele"; (*b*) a tail-like processus, partial closure; (*c*) a fine fibrous cord attached to the usual potential sac.

Another condition which is evidence of the congenital origin of the sac and which occurred in 6 per cent. of my cases is an encysted hydrocele of the cord. Here the processus has undergone irregular obliteration, leaving an intermediate patent portion. It is not uncommon to find this unobliterated portion without fluid contents, a potential encysted hydrocele of the cord. In some cases there is hyperplasia of the processus vaginalis, with subsequent partial disappearance of a proximal portion of the peritoneal pouch and persistence of the vaginal portion with or without fluid contents. This hernia with a potential vaginal hydrocele was described by Hey in 1764 as the "infantile type." When the hernial sac is accompanied by an actual hydrocele the condition is known as the encysted type of infantile hernia (Cooper).

The female analogue of Hey's or Cooper's type may occur. Although a potential sac is so common it does not follow that hernia must develop. As long as the "shutter" action of the muscles of the groin is maintained no oblique hernia will occur. This is an important fact in discussing the prevention of the condition.

MORBID ANATOMY OF OBLIQUE INGUINAL HERNIA SACS.

Examination of an adequately removed sac will demonstrate the large amount of slack peritoneum that may be removed. The mouth of the sac from a boy 6 years old measured 7 cm., while in a young man of 23 years it was 9 cm. in its longest diameter. If the inner surface of the mouth of the sac be inspected, very often thickened rough areas may be seen, the corns of Villandré. These rough areas may be seen in infants, and in elderly subjects may be calcified. They correspond to the pressure area of the epigastric vessels.

FASCIAL SURGERY.

The work of Kirschner and others has already been mentioned. In 1921 Gallie and Lemesurier began to publish the results of their experiments on fascial suture. These observers found in studying cases operated on for recurrent inguinal hernia, where an operation of the Bassini type had been done, that in most cases no evidence of any previous muscle suture remained. The same fact was also noted by Cudard and Jean in the following year. A large series of experiments was carried out and the following conclusions arrived at: (1) Edge-to-edge suture of fascial wounds is not strong, and is best when thread sutures are used. (2) Overlapping does not add to the solidity of the scar. (3) Cleaned fascial surfaces unite better than when areolar tissue is left between. (4) Side-to-side suture of the undamaged conjoined tendon to Poupart's ligament never leads to permanent union. (5) Pedunculated or free transplants of fascia and aponeurosis, if allowed an adequate supply of lymph, continue to live unchanged. (6) Living fascial strips become rounded and are soon organised into fine tendons.

In 1923 Seelig and Chouke published an important paper on a Fundamental Factor in the Recurrence of Inguinal Hernia. They confirmed Gallie and Lemesurier's observations, and, basing their opinions on a large series of experiments, concluded that (1) normal muscle will not unite firmly with fascia or ligament; (2) fascia unites well with fascia; (3) a weak abdominal wall should be strengthened by a fascial method. In 1924 Tinker and Sutton published similar results, and Adair, Eastman, and McEachern wrote on the surgery of fascial sutures. Numerous surgical writers noted these experimental findings and the slogan "White to White" was taught. In 1926, however, Koontz, repeating Seelig and Chouke's experiments, came to different conclusions. He found that when "cleaned" or scarified muscle was sutured to "cleaned" fascia firm union resulted. It was necessary, however, to prepare the surfaces very thoroughly and even to cut away a layer of muscle before suturing.

From the practical point of view in hernia operations it is probable that in the majority of cases the conjoined tendon does not unite to Poupart's ligament. To clean the surfaces as thoroughly as Koontz suggests is not practicable.

AN OPERATION FOR OBLIQUE INGUINAL HERNIA.

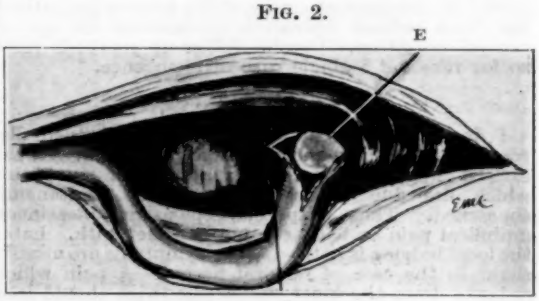
I have devised a form of hernioplasty which I have performed since January, 1925, in 125 cases, in 76 of which the operation was done on both sides—making a total of 201 flap operations.

The operation may be described in the following 12 steps: 1. Hemi-semilunar incision. 2. Division of external aponeurosis so as to allow of subsequent flap formation. 3. Dislocation of cord or round ligament from canal, traction downwards. 4. Definition of abdominal ring, commenced by division of inner part of infundibuliform fascia. 5. Isolation of sac and separation of its base. 6. Opening sac and pulling up slack peritoneum from below epigastric vessels. 7. Excision and suture of mouth of sac. 8. Closure of abdominal ring. 9. Preparation of a pedicled flap from the inner portion of oblique aponeurosis and a smaller one ("slip") from the outer part. 10. Suture of the lower border of the "flap" behind cord or round ligament by means of the "slip" to Poupart's ligament. Above by a thread to aponeurotic or fascial tissue. 11. Closure of external oblique aponeurosis by thread or free fascial sutures. 12. Ligature of the vessels, suture of superficial fascia and skin.

Step 1.—In making the incision on the left side of the patient the operator's index-finger rests on the anterior superior iliac spine, his little finger on the pubic spine, and the remaining fingers are allowed to take up their natural position. With the skin held tense the knife is swept round through a quarter of a circle from the little to the middle finger. Vessels are picked up before division if possible and the incision deepened until the shining oblique fibres are seen. In the case of a right-sided incision the position of the fingers is reversed. The little finger rests on the iliac and the index on the pubic spine. The incision is then made from the ring to the index-finger through a quarter of a circle.

Step 2.—As a rule the larger flap will be taken from the inner part of the oblique aponeurosis. The incision to open the canal will therefore be made nearer to Poupart's ligament than in the ordinary operation. Sufficient aponeurosis must be left on the outer side to form the pedicled strip used subsequently as a suture ("slip)." These flaps are not cut until later.

FIG. 2.



Abdominal ring showing edge of transversus fascia. A, "rising moon" potential oblique inguinal hernia appears. E, epigastric artery beneath fascia.

Steps 3 and 4.—Holding the cord outwards, after dislocating it from its bed, gives the operator full access to the sac with the minimal disturbance to the cord and its coverings. Division of the upper part of the infundibuliform fascia on its inner side enables a small sac to be found with great ease, as already described.

Step 5.—A very important point is the thorough isolation of the base of the sac, by sweeping the finger round in the interval between peritoneum and transversalis fascia. The epigastric vessels will be seen during this manœuvre. The rest of the sac is usually easily isolated by gauze dissection.

Step 6.—The sac is opened on its inner side and a finger introduced. The slack peritoneum is then drawn up from under the epigastric vessels until first the supravesical fat and then the bladder itself come into view. During thi

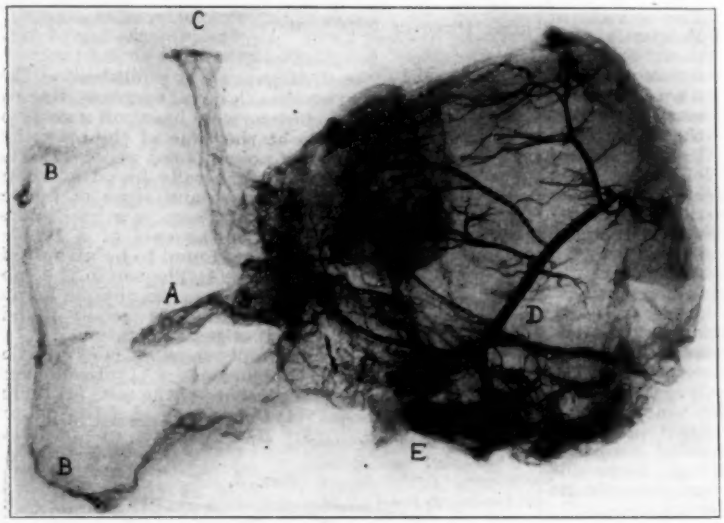
proceeding a glistening fibrous band may appear running parallel to the epigastric vessels. This is the obliterated hypogastric artery.

Step 7.—After careful inspection, to ensure that there are no adhesions or contents, the peritoneum is clamped by a succession of pressure forceps and is cut across. The cut edges are united by thread and allowed to drop back.

Step 8.—The edges of the ring are closed and the thread with needle attached is left, in order to complete the suture of the flap later (A stitch).

Step 9.—A flap of sufficient size to cover the undefended space without undue tension is cut from the cleaned inner part of the external oblique aponeurosis. Below it is left with the internal pillar of the subcutaneous ring as its pedicle, and above it is made long enough to reach up to the abdominal ring. It is usually about half an inch wide. The outer "slip" is next cut as long as possible ½ to ¾ in. in width, according to the thickness of the aponeurosis. This is also left attached distally. The "slip" is too short to work with comfortably and so is lengthened by being attached to a "loop thread" which carries the blunt-ended fascial needle.

FIG. 1.



Injected hernial region, showing blood-supply of external oblique. A, cord. B, reflected external aponeurosis. C, fascia reflected from B. D, epigastric artery. E, iliac artery.

Step 10.—The flap is passed under the cord or round ligament and is stitched along its lower border to Poupart's ligament by means of the "slip" attached to the loop thread. In order to make it fit snugly round the cord at its exit from the abdominal ring it is convenient in some cases to split the flap for half an inch or so. The upper edge of the flap is now stitched to the transversalis fascia by means of the thread left for this purpose, and next to the aponeurotic surface of the conjoined tendon, or failing this, to the most convenient fascial structures.

The remaining steps consist in suturing the oblique aponeurosis and closing the wound. The operation usually takes about 25 minutes and both sides can be done by this method in an hour.

DIRECT INGUINAL HERNIA.

Anatomy.—A direct inguinal hernia is not so uncommon as was originally supposed. It may occur in patients of all ages and is often bilateral. As soon as the canal is opened and the cord or round ligament is lifted the spherical swelling of this sac comes into view, usually covered by vertical attenuated fibres derived from the conjoined tendon. On division and retraction of the superimposed transversalis fascia the epigastric vessels are seen to course inwards above the sac. Exposure of the root of the cord at the abdominal ring, by my method, will invariably display a small oblique sac. This was pointed out by Hoguet and confirmed by Watson. Below, the sac comes into relation with the bladder, and as the dissection of the slack peritoneum of this region proceeds the obliterated hypogastric artery is usually seen.

Morbid Anatomy.—In a post-mortem specimen of an oblique-direct hernia (now in the Museum of the Royal College of Surgeons) it was possible in the fresh state to pull up the direct sac from beneath the vessels and convert the double hernia into one large oblique sac. This is "Hoguet's manœuvre," and is an extremely important advance in the operative technique for this condition. In Fig. 4 I have shown this manipulation diagrammatically.

The Operation.—From these remarks it will be seen that the operative treatment of direct hernia need no longer present difficulties nor furnish such a high recurrence rate as at present—viz., up to 25 per cent. The oblique hernia is found, the direct sac converted into one large oblique sac, and the operation completed by the author's usual flap hernioplasty. In the 15 direct cases of the present series the results have all been satisfactory up to the present.

FIG. 3.

Sac of femoral hernia.

FEMORAL HERNIA.

Anatomy.—In considering the anatomy of the femoral hernia its close connexion with the inguinal region should be borne in mind. In a dissection from the inguinal route the mouth of the sac commences behind Poupart's ligament. The slack funnel-shaped peritoneal pouch above this is in intimate relation to the bladder and lies behind the fascia transversalis. Externally in its fascial sheath lies the external iliac vein and behind the pubic ramus. In the thigh the relations of a femoral sac are well known.

Morbid Anatomy.—A femoral sac is usually preceded by a portion of the properitoneal fat which is abundant in this situation. This fat may be of considerable size and is probably a factor of ætiological importance. Fig. 3 shows a specimen illustrating the large amount of peritoneum that it is necessary to remove in the performance of an adequate operation; it may be contrasted with specimens obtained in the usual operations, when the sac is excised below Poupart's ligament. There is some thickening of peritoneum round the mouth of the sac, but no "corns" or nodes are found as in the case of oblique inguinal sacs. It is not uncommon for omentum to be adherent in the sac.

Operation.—The operation for femoral hernia should always be performed by the inguinal route. The

author employs his usual hemi-semilunar incision, splits the external oblique, raises cord or round ligament, incises the transversalis fascia, and isolates the neck of the sac by gauze dissection. In the case of a strangulated hernia or if the accompanying peritoneal fat is too large to pass up through the femoral opening in Poupart's ligament, the fibres of the latter are incised inwards towards the pubic spine. After a wide excision and suture of the peritoneum, during which the bladder is always seen, the incision in the transversalis fascia is carefully sutured. The opening in Poupart's ligament is closed by a pedicled flap, taken usually from the lower portion of external oblique, and is secured on the upper surface of the ligament by a pedicled autofascial suture, a free fascial slip, or by thread. Occasionally a free fascial graft may be advisable. In one case where a large strangulated hernia existed it was found necessary to divide the fibres of Poupart's ligament transversely. The resulting gap was closed by a pedicled flap and clinically it is impossible after 18 months to detect any weak spot. The difficulty in suturing a divided Poupart's ligament is well known, and although numerous methods have been devised for its restoration, none of them have ever been satisfactory.

FIG. 4.

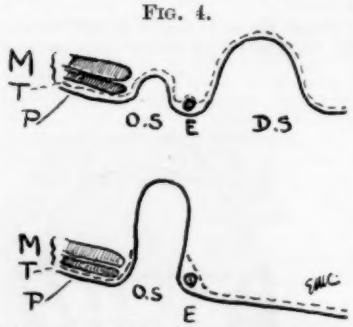


Diagram showing Hoguet's manœuvre. M, oblique and transversalis muscles. T, transversalis fascia (dotted line). P, peritoneum. O.S, potential oblique sac. E, epigastric vessels. D.S, direct sac.

HERNIOPLASTY IN VENTRAL HERNIA.

I do not propose in this lecture to enter into any detailed description of ventral hernia and its operative treatment. Fascial surgery affords eminently satisfactory results. Gallie and Lemesurier have described an elaborate technique, utilising 8-inch lengths of living fascia lata taken from the patient's thigh. I have modified and simplified the technique enabling the surgeon to deal with 3- or 4-inch lengths (Fig. 5). The short lengths of fascia, one-sixth of an inch wide, are prepared by an assistant and kept in warm saline until required. In order to make the strip long enough to work with, a "loop thread" is attached by turning one end of the fascial slip over the thread and tying off by a stitch, which also pierces the fascial strip. The other end carries a tail or fixation stitch, threaded on to an ordinary round-bodied needle. The fascia needle attached to the "loop thread" is specially devised to push its way through aponeurotic tissues without cutting the fibres. If more than one suture is required the loop end is fastened off by the fixation stitch of the next suture, and so on. This combination of thread fascia is easy to work with. Fascia is a slipping tissue and is not easy to manipulate as described by Gallie and Lemesurier.

In repairing a large ventral hernia it may be possible after a wide dissection to prepare sound edges suitable for fascial suture. If the component layers of the abdominal parietes are attenuated or even missing, the weakened wall may be reinforced by free fascial grafts taken from the patient's own thigh and secured by fascial stitches.

In a case operated on nine months ago the patient, a woman of 50, presented a very thin abdominal wall, weakened by four previous laparotomies and severe X ray burns sustained during treatment following a hysterectomy for malignant disease. On admission to hospital a loop of small bowel was found protruding through the skin over the centre of one of the scars. A transverse incision from one superior iliac spine to the other was made and no trace of the lower portion of either rectus could be found. The slack peritoneum was plicated and covered by large fascial grafts. Over this was stitched the skin, which was only half its usual thickness. The patient has now a very thin abdominal wall, but has no actual hernia and is able to get about and do her household work.

A filigree would probably not have been of use in this case.

FILIGREE METHODS.

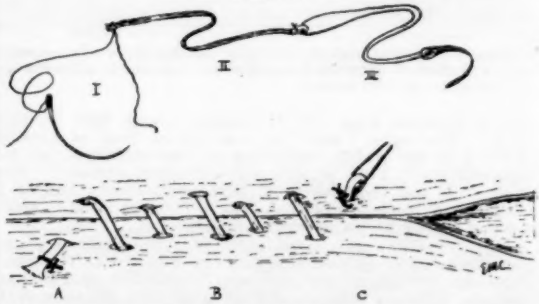
The silver filigree described by Bartlett and introduced into this country by Laurie McGavin in 1911 was at one time extensively used in the treatment of large ventral hernias. The filigree tends to break up in the tissues after a time and the method has been gradually discarded. With smaller filigrees the wire is not subjected to the same strain and the network may still be seen intact and in position, even after three or four years.

RECURRENCE.

Causes.—An excellent paper was published on this subject in 1922 by two French naval surgeons, Oudard and Jean. Their conclusions were based on a study of 145 observations made at the time of the operation for recurrence. The chief points noted were: (1) The skin over the hernia sac is generally found adherent to the underlying aponeurosis, and signs of former suppuration are present. (2) There is a gap in the external aponeurosis. (3) In the case of a Bassini operation the muscle-fibres are found to be atrophied, especially after suppuration. (4) The sac in the case of direct hernia simply reappears. In oblique hernia a loculus or saccular diverticulum is usually found. This was overlooked at the original operation.

In the list of operation faults these authors give the following as favouring recurrence: (1) Insufficient resection of sac. (2) Mal-ligature of the sac. (3) Inclusion of sac contents. (4) Persistence of a too patent abdominal ring. (5) Bad closure of parietes.

FIG. 5.



Detail of fascial suture. I, tail thread with ordinary round-bodied needle. II, fascial strip, which need only be 4 inches long. III, loop thread with "fascial" blunt-ended needle. A, fixation stitch at commencement of fascial suture. B, suture passed, taking in varying amounts of aponeurotic fibres. C, fastening off head of stitch.

(6) Omental adhesions to line of suture of sac mouth. (7) Suppuration.

A study of this list of faults will show that they are all provided against in the author's hernioplasty.

Frequency of Recurrence.—The most recent English figures collected are those of Surg.-Commander H. E. R. Stephens, published in January, 1927. In some 2000 cases including inguinal, femoral, and umbilical hernias, the recurrence rate was found to be 10 per cent. Of these cases which recurred 10 per cent. were operated on prior to admission to the Royal Navy, by a number of operators, many of whom undoubtedly possessed little opportunity for the frequent practice of herniorrhaphy. In America Erdman published in 1923 records of the late results of 978 traced cases of hernia operations. The total recurrence rate was found to be 6·67 per cent., 3·15 per cent. in oblique and 16·61 per cent. in direct hernias. Another series published in 1920 by A. S. Taylor from the Johns

Hopkins Hospital gave a recurrence rate of 5·6 per cent. out of 816 oblique and 29·7 per cent. in 94 direct hernias.

The time interval between date of operation and recurrence is interesting. 98·6 per cent. of recurrences showed themselves by the end of the second year. Of these 90 per cent. had occurred at the end of 18 months, 73·9 per cent. at the end of 12 months, and 47·9 per cent. within six months.

The results of a series of 3000 hernia operations were reported in 1924 by B. L. Coley, of New York. The author has published a full analysis of these statistics elsewhere. In children the recurrence rate is nil. In adults Coley gives 8·7 per cent. and 4·4 per cent. recurrences in males and females respectively in the case of oblique inguinal hernia, while in the direct variety it is 16·4 and 50 per cent. In femoral hernia in 80 cases the recurrence rate was 9 per cent. in males and 14 per cent. in females. In 47 cases of recurrent inguinal hernia a Bassini or modified Bassini type of operation had been performed in each case.

With regard to fascial surgery and hernioplasty, sufficient time has not yet elapsed nor have surgeons performed a large enough series of operations upon which to base a final judgment. Gallie and Lemesurier quoted a series of 60 cases in 1923 without recurrence, McArthur in the same year 100 without recurrence. In 1925 Goldenberg stated that Wainschenker, of Czitomir, had performed since 1923 125 hernioplasties with pedicled autoplastic sutures, with only one recurrence. In the past two years the author has performed his flap hernioplasty on 125 individuals, in whom the opposite side was also dealt with in 76 cases, making a total of 201 flap operations. So far a single recurrence has been observed. It seems probable therefore that in hernioplasty an operative technique has been found which will give perfect and absolutely reliable results.

In conclusion I wish to express my thanks to Prof. Sir Arthur Keith for the inspiration and valuable help he has readily given at all times. The specimens taken from the operation cases have been prepared and mounted by Dr. C. F. Beadles, to whom also I express thanks.

CONTROL OF SCARLET FEVER IN A CHILDREN'S HOSPITAL.

BY D. McCLEAN, M.B., B.S. LOND.,
ASSISTANT PATHOLOGIST, HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET.

A CASE of scarlet fever in a children's ward is always a cause of anxiety to hospital authorities, and has hitherto involved the cancelling of all admissions to and discharges from the infected ward for a period of not less than ten days. Scarlet fever occurs more frequently in surgical wards and, when the infection spreads, may gravely impair the results of operative treatment. Furthermore, the necessary closing of the ward entails lengthening of the usually overcharged waiting-list.

On referring to the records of the incidence of scarlet fever at this hospital during the last few years one finds considerable variation in the spread of the infection in the exposed wards from year to year. For example, in 1923, 26 cases of scarlet fever occurred in the wards of the hospital, of which only six contracted the disease from patients already in the wards. The remaining 20 were all isolated cases occurring in different wards at different times. In 1924, however, there were 31 cases, 15 of these were infected by contact in the wards with eight cases. These involved quarantine of the wards concerned for periods varying from 10 to 22 days.

The introduction of the Dick test and the possibility of protecting susceptible (Dick-positive) patients by the injection of specific antitoxic serum suggested a procedure in exposed wards which it was hoped might prevent the spread of infection, make it possible to eliminate the quarantine period, and carry on with the operative treatment of the patients in the ward.

Preventive Procedure.

Since January, 1925, the procedure detailed below has been adopted immediately a case of scarlet fever has been notified in a ward, and while the results of this procedure have been under observation, the quarantine period of 10 days has been maintained in order that the contacts might be watched for any further developments. (1) All the patients in the ward were Dick-tested as soon as practicable. (2) The following day all Dick-positive children were given 5 c.cm. of scarlatinal antitoxic serum intramuscularly. (3) On the third day these positive children were re-Dick-tested, and if any were found to give a positive or doubtful reaction a further dose of serum was given.

The technique adopted in Dick testing was that suggested by Dr. R. A. O'Brien of the Wellcome Physiological Research Laboratories—namely, the intradermic injection of 0·2 c.cm. of a 1/1000 dilution of the toxin obtained from the scarlatinal streptococcus. At the same time a control injection of 0·2 c.cm. of 1/1000 heated toxin (2 hours at 100° C.) was given. The tests were read at 10 hours, 18 hours, and 24 hours approximately. A positive reaction showed a deep red blush with a circumscribed area of from 20 to 30 mm. in diameter at the test injection with no reaction at the control injection. A few doubtful reactions showed a definite blush with a smaller diameter than this; these were regarded as positive for the purpose of this investigation and were protected with serum. There was no difficulty in reading the results of these tests, the reactions being marked in most cases. Very few pseudo-positive (cases in which the control injection produced a reaction) results were obtained. Infants may be difficult to test because of the extreme thinness of the skin, laxity of the subcutaneous tissues, and their disinclination to keep still. The appearance of a definite intradermic bleb on injection indicates that this has been successful. Subsequent observation was made for: (1) The occurrence of scarlet fever in these contacts. (2) The incidence of serum rashes and the occurrence of any other unfavourable symptoms which might be attributed to the serum.

Results.

So far, 25 wards containing from 20–30 patients in each have been treated in this manner. *In only one of these wards has a second case of scarlet occurred amongst the patients exposed to infection.* This one exception was significant; it occurred during the early period of this procedure, when the known methods of standardising the serum were very much more unsatisfactory than they are now. On retesting the cases which had received the serum, it was found that many of them had not been converted into Dick-negatives and a further injection of serum was necessary. It was during the delay entailed in obtaining a fresh batch of serum that two further cases of scarlet fever occurred in the Dick-positive patients. On two separate occasions a nurse in the infected ward contracted scarlet fever in the quarantine period. After the first two or three outbreaks testing of the nurses was not done. It was not considered advisable to give them a temporary passive immunity in view of their liability to further exposure to infection; an active immunisation routine for the nursing staff had not been developed and, owing to shortage of staff, it was not possible to isolate the Dick-positive nurses for the necessary quarantine. On neither of these two occasions were any of the protected children infected by the nurse.

The proportion of Dick-positive children (aged infancy to 12 years) varied from 30–70 per cent. in the batches tested. The proportion developing serum reactions varied enormously in different wards and with different batches of serum. In the majority of wards only one or two children would show a transient urticarial rash. In a few wards, however, there were many such rashes with some pyrexia and, occasionally,

diarrhœa. The type of reaction varied. Usually there was some pyrexia, 100° F.—and in a few cases 102°—during the 24 hours following injection. This might, or might not, be associated with the later rash. In all cases the reaction appeared to be very much milder than that of adults. The children did not complain of joint pains and did not appear to be ill. I had thought this variation to be largely attributable to the batch of serum employed, but Dr. O'Brien informed me that the sera were all "pooled" batches from various horses, and he suggested that these variations might be due to the relatively small number of patients (20 to 30) in each series.

So far no superiority of the concentrated over the unconcentrated serum has been observed in Dick-conversion or the production of serum reactions. However, a routine injection of 5 c.cm. of serum was always given, and no attempt was made to compare the minimal doses of the two types of serum which would convert Dick-positives into negatives in parallel cases. On a few occasions, owing to a later outbreak of scarlet fever in a previously infected ward, it happened that a child previously Dick-positive was retested and had to be protected again. In these cases, prior to inoculation with the serum, an intradermal injection of 0·2 c.cm. of 1/100 dilution of the serum was given, and the child watched for half an hour for the development of local or general reaction. No cases of anaphylaxis occurred.

No systematic observations of the duration of the passive immunity afforded by the serum were made. On re-Dick-testing children in the subsequent outbreaks referred to above, after intervals of a month and six weeks, it was noticed that in about half a dozen cases the Dick test was undoubtedly modified by the previous dose of serum. In none of these cases was the reaction absolutely negative, but it was fainter and more diffuse; in two of these cases there was a pseudo-reaction with the control.

In view of our experience with these 25 outbreaks, it has been decided to adopt this procedure as a routine in future, to ignore the quarantine of the ward, and to proceed with operations, admissions, and discharges. In fact, this has already been done in two wards without any untoward result.

Another use of the Dick test may be noted in this connexion. In December, 1924, three cases of suspicious sore-throat with pyrexia and vomiting had occurred in one ward. These had been regarded as possible mild cases of scarlet fever, and they had been isolated together with three contacts. No rash or peeling had developed. It was desired to clear up the diagnosis in order to return these patients to a general ward. Dick tests were carried out three weeks after the incidence of the sore-throats. The three affected children all gave positive reactions. Two contacts gave negative results and one was doubtful. Therefore it was presumed that these sore-throats had not been scarlatinal and the patients were returned to the general ward. No further cases of scarlet fever occurred in the ward.

Summary.

(1) The procedure adopted in 25 wards containing from 20 to 30 patients suggests that the spread of the infection can be controlled. No second case of scarlet fever occurred in any of the protected patients. (2) No effects dangerous to the patient could be traced to the Dick test or serum injection, though, in a small minority of cases, the serum reaction was severe enough to cause pyrexia and some diarrhœa extending over a few days. (3) This procedure would appear to be applicable to schools and institutions other than children's hospitals.

I am indebted to the honorary staff of the hospital for permission to publish these results obtained from observation of cases under their charge, to the resident staff for their co-öperation in reading the tests and injecting the serum, to Dr. R. A. O'Brien of the Wellcome Laboratories of Physiological Research for supplying toxin and serum, and to Dr. D. Nabarro in whose department the work was done.

MALARIAL THERAPY IN GENERAL PARALYSIS OF THE INSANE.

A REVIEW OF THREE YEARS' WORK.

BY JOHN P. STEEL, M.D. EDIN.,
ASSISTANT MEDICAL OFFICER, COUNTY MENTAL HOSPITAL, WINWICK, WARRINGTON;
AND
J. ERNEST NICOLE, L.M.S.S.A. LOND.,
SENIOR ASSISTANT MEDICAL OFFICER TO THE HOSPITAL.

THE treatment of suitable general paralytics by malaria was commenced at this hospital a little over three years ago, and has since been carried on systematically. During this period more than 150 cases have been diagnosed clinically and confirmed in the laboratory, a large number of which have been subjected to malaria, and the general results and observations made thereon are quoted below. Very few definite conclusions can be arrived at in so short a space of time, and only tentative opinions as to the value of the treatment can be offered.

Of the total number admitted only 28 cases have not been treated and all these have since died; of the remainder, 13 failed to develop malaria, and these have also died; 120 patients have had induced malaria, but 10 of these are too recent to be included in our discussion of results; 38 deaths have occurred amongst those who have had malaria; 2 have been transferred, and 26 discharged, leaving 54 presently in hospital.

Admitted	161	Died treated—	
		Malaria	.. 38
Inoculated—		No malaria ..	.. 13
Malaria	.. 120		
No malaria ..	.. 13	Died untreated ..	.. 28
		Discharged	.. 28
Not treated ..	.. 28	Remaining	.. 54

Primary Infection.

Infection has been conveyed to the patients by all routes, and an analysis of the successful cases is as follows:—

Mosquito Infection.—24 cases; the longest incubation period was 22 days, the shortest 8, and the average 13 days.

Intravenously.—25 cases; the longest incubation period was 22 days, the shortest 4, and the average 12 days.

Intramuscularly.—70 cases; the longest incubation period was 25 days, the shortest 5, and the average 12 days.

Subcuticularly.—One case only, with an incubation period of 19 days.

The length of the incubation period seems to have little or no relation to the season of the year.

As a rule, where mosquito infection has been used, the parasite is found in the peripheral blood two or three days before the onset of pyrexia; where, however, the "unnatural" route is chosen, pyrexia precedes demonstrable parasites.

A feature of interest in the incubation period is that, concomitant with the gradual lowering of the hæmoglobin content of the blood during the few days prior to the first real rigor, smaller rises of temperature may be noticed, seldom reaching higher than 100° F. From the periodicity of these minor rises, it is often possible to foretell the type of the oncoming malaria. These minor rises may well be due to the liberation of those toxins without the presence of which Stitt considers a true malaria rigor can not be produced. In answer to the possible objection that many patients do not show these preliminary and mild rises of temperature, it may be pointed out that in numerous cases where these signs are absent the first true pyrexia is unaccompanied by the shivering of rigor.

Period of Pyrexia.

Although all malaria conveyed to patients has been of a known benign tertian type, there has been no certainty of periodicity in pyrexia; mosquito-borne malaria has, on the whole, proved more true to type in this respect. Little need be said about the actual malarial period; in the earlier days it was considered that the greater the number of rigors obtainable, the greater

the possibility of improvement. Latterly, seven or eight rigors have been considered quite sufficient in the majority of cases, and in many of them even fewer have been found efficient in procuring an amelioration. The average number of rigors in this hospital has been seven.

No difficulty has been experienced in the termination of the malaria by quinine sulphate. A few spontaneous cessations of malaria have occurred, but quite a reliable history of tropical malaria has been obtained in such instances—a point to be considered, especially in comparison with the disappearance of the pyrexia of renewed therapeutic infections (see below).

Relapses have occurred after all methods of infection, but most infrequently when the intramuscular route has been used—that is, in two instances only.

Post-malarial Period.

No spectacular results are to be looked for either during the malarial period or immediately after. Although it is true that in certain cases a mental improvement seems definitely to commence at the height of the pyrexia, yet on the other hand a number of patients become acutely maniacal at this time. The improvement, if any, tends to be much slower from the mental standpoint than from the physical, and may be long delayed. Considerable disappointment is sometimes experienced in patients who show some amelioration shortly after the termination of the malarial attack, but who later relapse. The physical condition is one of anæmia, which readily responds to iron and arsenic, and the weight of the patient should steadily increase with the passage of time. Unfortunately, however, the mental improvement is by no means always in line with the bodily progress, as is evidenced by the number of patients still remaining in this hospital, of whom only four are confined to bed.

One result of the treatment stands out pre-eminent: the habits of the general paralytic are but rarely good, yet after malarial therapy an improvement is noted in the great majority of cases, the faulty habits becoming clean, to the great convenience and comfort of patient and staff.

Serological Changes.

Careful records have been made here of the serological investigations carried out before and after treatment, and definite changes in the reactions of the cerebro-spinal fluid have been found at varying periods after malaria. No generalisation can be indulged in, but in numerous instances the excess globulin is found to disappear about 12 months after the termination of pyrexia, and the gold-sol reducing power of the fluid is diminished at or soon after that time. The acetic-anhydride reaction has, too, sometimes been found definitely negative after malarial treatment, although it seems much less prone to alter than the other serological tests. A diminution in the cell-count is frequently evident and is sometimes very marked. In a large number of cases such changes do not occur pari passu with clinical improvement; one of the worst cases at present in hospital has a colloidal gold reading of 0001110000, with negative globulin, whilst a patient who has improved almost to the point of discharge shows a gold curve of 5555554330, with a weakly positive globulin.

Again, we have seen cerebro-spinal fluids which, after a period of partial "clearing," commence to recede—e.g., a patient whose fluid was improved to the point of giving a reading of 2345543000 with negative globulin and acetic-anhydride reactions, subsequently gave, two years after malaria, 5555553220, with positive globulin and acetic-anhydride results and an increased cell-count. In spite of this the patient is making marked mental progress.

General Treatment.

The various arsenical preparations have been extensively used in after treatment, but apart from their general tonic effect they have had no influence on our patients' condition, and do not seem to have assisted in "clearing" the cerebro-spinal fluid; indeed, it has been our experience that where "914" has been administered the Lange's reading has seldom altered. This cannot be taken as a fact of value, because so many cases showing mental improvement continue to give true paretic curves. Use has also been made of such preparations for the termination of pyrexia, but the success has only been partial in that parasites have still been found in the peripheral blood long after the abatement of temperature.

For over two years mercury and potassium iodide have been given for long periods as a routine, and these combined drugs appear to have lessened the incidence of seizures of a cerebral type in all but the failing patient. The iodide is, of course, given in increasing doses, and only in two cases has any suspicion of iodism been noticed. Cerebral seizures before treatment have been comparatively common and several patients have had them during the earlier period of malaria: it is now the exception to have such occurrences in general paralytics under treatment, and where they are observed it is a good ground for a poor prognosis.

It is the rule here to endeavour to keep treated cases of general paralysis under observation for at least nine months or a year. The wisdom of this course has been demonstrated frequently, for there is sometimes a spurious improvement in the mental condition which gives place within three or four months to a lethargic type of grandiose behaviour, very frequently accompanied by an enormous appetite. We might instance one such patient who can readily eat three full dinners at one meal, and then say he is hungry. Quite a number of the discharged cases evinced little mental betterment for the first year after malaria, and it was only at the end of that period that a slow return to mental health commenced.

Second Attacks of Induced Malaria.

Where no assessable improvement has ensued, and where the physical condition permits, an attempt to induce a second series of rigors is made. This, however, has proved a matter of great difficulty in a considerable number of cases, for there seems to be a very well-defined resistance of the body to the parasite, and no satisfactory explanation can be advanced to account for this state of things.

Resistance has been offered to both the natural and "unnatural" infections; patients have been resistant to intramuscular and intravenous infections and have yet had this resistance overcome by mosquitoes; a few have been resistant to mosquito bites (of mosquitoes which were known to be infective and which had infected other patients within 20 minutes), and these have developed malaria by a patient-to-patient infection; again, a very few have proved to be resistant both to mosquitoes and to injection of known malarial blood. Such immunity does not appear to be explicable by reference to the original source of the primary attack, its length, the incidence of relapses, the age and conditions of the patient, or their blood groups. In fact, no constant factor is ascertainable in this class of patient; possibly it lies within the sphere of biochemistry. The second incubation period bears a close resemblance to that of the primary attack, taking into account the route of infection employed. The incubation period for any individual case, however, may vary by quite a few days in the second attack as compared with the first.

When malaria is induced by therapeutic methods for a second time, another factor has to be reckoned with. The primary attack seldom "cures itself" and quinine has to be exhibited in the ordinary way. In the second attack, however, it is almost the rule to find a spontaneous remission, pyrexia disappearing before the parasites. Soon after, however, the blood film becomes and remains negative. Nowadays, when a patient shows a spontaneous remission in what is regarded as the primary attack, it is enough to make one almost certain that he has previously had malaria.

Quite what bearing such "immunity" and spontaneous remission have in the sphere of preventive medicine it is not our province to decide. It may be that "unavoidable" malaria is cut short as quickly as possible with the prevention of antibody production, if such production occurs; in induced malaria, on the other hand, the fever is definitely encouraged and allowed to continue as long as the patient is equal to the strain. Against this, however, must be placed the fact that, where the physical condition of the patient has demanded it, the infection is quickly terminated, despite but two or three rigors; in such cases the same immunity has been experienced, whilst mosquito-infected patients who have had a relapse of malaria are also known to have shown quite a definite resistance. Whatever the reason, the second induced attack is usually of much shorter duration and, although the rigors are true to type, the frequency of spontaneous remission has been such as only to permit our patients to have on an average five high fever reactions.

On the whole the second attack drains the system of most patients to a less degree than does the first. The exception to this is the patient who, in the intervening period, has become excessively fat. Nowadays such a patient is left severely alone, and no attempt is made, whilst he is in this condition, to infect him again. The unhealthy fat seems to overtax the heart to a marked degree, and further malaria puts too great a strain thereon. Second infection has been only attempted with such patients as have made no definite mental progress: an interval of approximately one year, and frequently longer, has been allowed to elapse before such attempt was made. That a second induction is justified is proved by the fact that of the 30 cases reinfected 3 have been discharged, 4 are doing really well, whilst 5 have shown some improvement.

Conclusions.

It is rather difficult to assess the value of the malaria treatment, and certainly no opinion can be given with authority such as is given by the German observers who claim to have had patients discharged and usefully employed for seven years. No such opportunity has been enjoyed as yet, and our results are not so happy.

Although we have discharged 26 patients, 3 of these are known to have been readmitted to other hospitals in a definitely relapsed condition, and 2 others have been returned to us; moreover, we have here at present 2 cases treated at other mental hospitals who had subsequently relapsed. On the other hand, we have heard of some of our patients who have been at work for more than a year, and of one who has been discharged for more than two years and shows no signs of a relapse. Excluding the 10 most recent cases, and allowing for such relapses as are known to have occurred, the recovery rate works out at 20 per cent. Possibly, owing to earlier diagnosis elsewhere, the cases admitted recently have been of a type which will respond and are actually responding more satisfactorily to the malarial therapy.

In view of the hitherto almost hopeless prognosis in general paralysis of the insane the percentage recovery (or remission) we have obtained seems to be complete justification for the use of malarial therapy. In addition, from a hospital point of view the treatment is certainly well worth while, as the patients become much more easily dealt with, and, in fact, if the only improvement to be found was in their habits (which almost invariably become clean) the advantages accruing therefrom would be sufficient to warrant the work.

We would wish to record our acknowledgments to Dr. T. W. Davidson, late of this hospital, who published some details of the first results obtained, early in 1925. To the medical superintendent of this hospital, Dr. F. M. Rodgers, we are again indebted for permission to use hospital facts and figures, and for much kindly supervision.

THE NATURE OF THYROTOXIC MYOCARDITIS.

BY J. STRICKLAND GOODALL, F.R.S. EDIN., F.R.C.S. EDIN., M.B., M.R.C.P., M.S.A. LOND.,
PHYSICIAN TO NATIONAL HOSPITAL FOR DISEASES OF THE HEART; LATE LECTURER ON PHYSIOLOGY AND SUB-DEAN, MIDDLESEX HOSPITAL;
AND
LAMBERT ROGERS, F.R.C.S. EDIN., M.R.C.S. ENG.,
MEMBER JUNIOR CANDIDATE GROUP, AMERICAN COLLEGE OF SURGEONS; ASSISTANT IN SURGICAL UNIT, WELSH NATIONAL SCHOOL OF MEDICINE, THE ROYAL INFIRMARY, CARDIFF.

THAT sustained thyrotoxicosis ultimately results in definite myocardial degeneration is by no means accepted universally. It is our intention here to endeavour to establish this thesis.

Frequently one hears the disordered heart action in exophthalmic goitre referred to as functional, and although it is well known that cases of Graves's disease may die suddenly, the heart failure has been regarded by many merely as the outcome of exhaustion following the rapid heart action.

On consulting a number of recent text-books of medicine we find that where reference is made to the morbid histology of Graves's disease, mention is made of the thyroid, the thymus, the cervical sympathetic ganglia, the blood, the brain and spinal cord, the spleen, cervical and bronchial glands, even Peyer's patches, but that references to the heart are conspicuously wanting. In one work we read that in some cases the heart is dilated and that valve trouble may be present, while according to the author the sympathetic ganglia have been found to be diseased also. Another writer states that in the great majority the heart is perfectly sound, and that after death in uncomplicated cases the heart is found to be normal in both the valves and the muscular tissue. We cannot regard these findings as typical.

One of us (J. S. G.) has for a number of years maintained, and to the satisfaction of many demonstrated by means of the electrocardiograph, that definite myocardial damage does occur.[1] In this paper it is our purpose to refer to the morbid histology of the condition, but before dismissing the subject of the electrocardiographic manifestations we would draw attention to certain aspects of this side of the question.

The myocardium differs from all other muscular tissue, the common properties of which are irritability, contractility, conductivity, and tonicity, by showing a differentiation of these various functions by their special development in certain of its parts. Irritability is predominant in the auricles and determines the origin of the beat, contractility in the walls of the cardiac chambers generally, particularly those of the ventricles, and in the papillary muscles; conductivity has become largely allocated to a special system, the auriculo-ventricular bundle of His, while tonicity, although like these others a property of the cardiac musculature generally, is especially developed in the region of the valve rings so that these may be regarded as modified sphincters, which normally keep the valves competent.

Electrocardiographic Evidence.

The electrical changes produced during a cardiac cycle are modified by damage to any part of the myocardium, probably in a manner comparable with their modification in injured skeletal muscle, which, as is well known, becomes electro-negative to healthy muscle.

Owing to this differentiation of function in the myocardium the physical signs and electrical manifestations of damage to it differ with the part affected

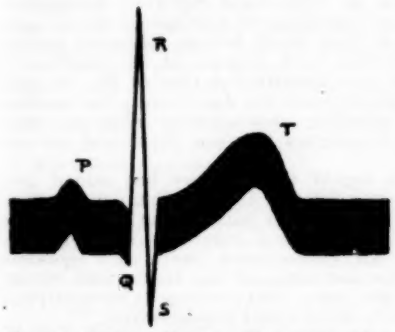
[1] The Heart in Graves's Disease, Practitioner, July, 1920.

and the extent to which it is damaged—e.g., if the auricle is chiefly involved an auricular irregularity or tachycardia commonly results, while if the bundle system is chiefly affected some variety of heart-block results.

Fig. 1 shows a normal electrocardiogram P, Q, R, S, and T, being the waves produced by auricle, right and left ventricles, and the aortic base respectively, and P-R the time interval taken by the contraction wave to traverse the bundle of His.

Figs. 2 and 3 are diagrams of typical electrocardiograms (lead 2) from cases of ordinary physiological tachycardia and well-marked Graves's disease.

FIG. 1.



Normal electrocardiogram. The mean of a number of curves taken from healthy students (lead 2.)

Certain differences will be noted: (1) While in physiological tachycardia (Fig. 2) the P waves are always smaller than the T, it will be seen that in the case of acute thyrotoxicosis (Fig. 3) the P waves reach the level of the T waves; either, therefore, the auricular contractions in Fig. 3 are relatively greater than in the other case, or the contractions in the regions of the ventricular base are smaller. In either case this alteration, implying as it does auricular overaction or alternatively an impairment of function in the region of the base of the ventricle, points to some change in the heart musculature. (2) In Fig. 2 the P-R interval is within the normal (0·2 seconds); in the case of Graves's disease this is often increased, indicating delayed conduction in the bundle of His.

It is well known that auricular fibrillation—a manifestation of gross damage to the auricles—is common in Graves's disease.

Probably enough has been said to indicate that electrocardiograms in Graves's disease show that there are good reasons for believing that degenerative changes take place in the myocardium.[1] In 1917, in a paper enumerating the causes of sudden death Sir Bernard Spilsbury[2] pointed out that "exophthalmic goitre occupies an important position as a disease liable to cause sudden death owing to secondary disease of the heart muscle . . . . death may occur suddenly with no apparent cause."

It is this secondary disease of the heart muscle, still sceptically regarded by many, with which we are concerned here. We submit that it is well illustrated in the following case.

Clinical Record.

N. M., a previously healthy young woman, aged 21, consulted her doctor in February, 1924, because of palpitation. There was not much enlargement of the thyroid at this time, nor any sign of exophthalmos, but her condition became worse, and early in August a diagnosis of well-established exophthalmic goitre was made. She rapidly became worse and later in the month was sent to hospital. She then presented all the cardinal signs and appearance of a typical, well-marked case of acute Graves's disease.

As six months' medical treatment had proved ineffective, it was decided to attempt to reduce the degree of thyrotoxicosis by cutting off part of the blood-supply to the thyroid. She was much too ill to be subjected to an anæsthetic and partial thyroidectomy and so, nine days after her admission, polar ligation of the right superior thyroid artery was performed under local analgesia. After this there was a distinct improvement in her condition. She stated that she had not felt so well for a very long time, but a fortnight later she had an attack of acute thyroidism which, it was thought, would prove fatal. The intensity of this attack subsided somewhat, however, and six weeks after the first ligation, with a view to checking still more the degree of intoxication, the second superior thyroid was tied under local analgesia.[3] Forty-eight hours afterwards, however, she had another exacerbation which proved fatal.

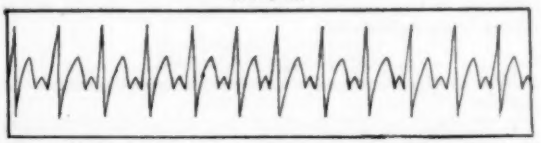
At no time while the patient was under observation in hospital did she suffer from auricular fibrillation; the pulse was regular, its rate varying from 96 to 160 beats per minute. The case was an advanced and very acute one that showed little or no response to rest or medical treatment. Subsequent examination has shown that the damage to the heart muscle was such that but little could have been expected from surgical treatment had it been possible suddenly to put out of action the over-active thyroid.

Pathological Findings.

After death the right side of the heart was found to be dilated; the valves were healthy in appearance and competent, and wherever it was cut the muscle *appeared* healthy and normal in thickness and colour. One could quite understand why many maintain that in these cases the heart action is a functional disturbance. However, the microscopic appearances in this case have shown beyond doubt that there was diffuse myocardial degeneration present.

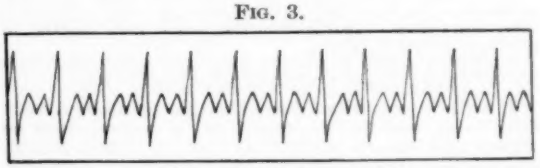
Sections were cut from both auricles, both ventricles, and the region of the interventricular septum. These were stained with hæmatoxylin and eosin, and then other methods, Gram, van Giesen, and Weigert's fibrin-staining were tried to heighten the contrast.[4] The outstanding feature of these sections is necrosis of bundles of muscle-fibres scattered amongst apparently healthy fibres. This is shown in the accompanying microphotograph (Fig. 4). Evidence of the intensity of the toxæmia is gathered from the fact that in some of the sections certain of the necrosed muscle areas are free from invading cells, whereas as one would expect other areas are markedly infiltrated, probably with a view to absorption of the necrotic débris. An enormous preponderance of polymorphonuclear leucocytes is seen in the section of the left auricle, but the process of scattered muscle-fibre necrosis is apparent in both auricles and both ventricles. Some capillaries are found choked with cells which can be seen infiltrating surrounding necrotic areas.

FIG. 2.



Physiological tachycardia T waves considerably greater than P waves.

FIG. 3.



Tachycardia in well-established thyrotoxicosis. T waves = P waves.

A close examination of all sections shows the most marked and most recent degeneration, probably the immediate cause of death, in the right ventricle, where large areas of necrosis, devoid of any infiltrating phagocytic cells are apparent, the least change in the region of the interventricular septum and the oldest changes, judging by the concentration of infiltrating cells, in the auricles.

These changes are what we should expect from the clinical findings. It will be remembered that post mortem there was right heart dilatation, that during

[1] Sudden Death, Practitioner, 1917, p. 132.

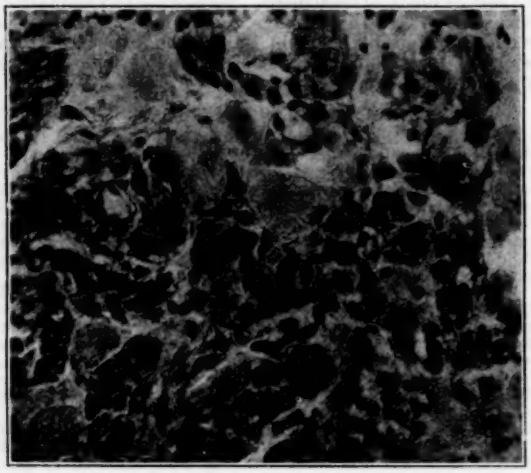
[3] From recent investigation we are now of opinion that would have been preferable to have tied the inferior artery of the same side as the previous ligation.

[4] For the sections we are indebted to Mr. C. R. Drury.

life the patient had a very fast pulse (absence of damage to a.-v. bundle), and that at no time while under observation did auricular fibrillation occur. The necrosed muscle bundles seen in these sections recall Zenker's degeneration found typically in the recti abdominales in typhoid fever.

It is interesting to note that according to MacCallum, Stejskal and others have described hyaline degeneration or actual necrosis of muscle-fibres scattered throughout the hearts of those dying from sudden

FIG. 4.



Microscopic appearance of section of the right ventricle of a woman aged 21 with Graves's disease. Magnified 750 diameters. Stained with hæmatoxylin and eosin. Note the pale areas of necrosed muscle, the swollen nuclei, and the patchy distribution of the areas of necrosis.

collapse at the height of diphtheria, and also in those dying from peritonitis.

Pathological Changes.

We would summarise the pathological changes as follows:—

1. Hyaline degeneration and necrosis of many bundles of fibres scattered throughout the myocardium. The necrosed bundles take the stain badly, are swollen, and lack definition. The nuclei of some are also swollen.
2. A migration of evidently phagocytic cells in the direction of certain of the necrosed fibres no doubt in order to promote their absorption. This infiltration, while very marked in places, is absent in others.
3. Dilated capillaries choked with endothelial cells which are infiltrating certain necrotic areas in their vicinity.

It will be seen that these changes point to a very definite myocardial degeneration, a degeneration so diffuse and extensive that, at first, it looked almost like an infective condition. No organisms, however, were discovered in sections especially prepared with Gram's stain.

Owing to the courtesy of Dr. R. W. Scarf we have been able to examine sections of the myocardium in another case of fatal thyrotoxicosis, that of a woman of 51 who was being treated by X ray exposures to the thyroid. During an application she collapsed and died a few hours afterwards.[5] In this case in addition to muscle bundle necrosis similar to but not as marked as in the case of the girl of 21, there was what was absent in the younger case—namely, fragmentation of the ventricular fibres.

From such cases we feel justified in concluding that definite myocardial degeneration does occur as the result of prolonged thyrotoxicosis, a conclusion previously reached by us from the clinical and electrocardiographical signs.

We are not concerned here with the nature of the toxic thyroid secretion. Some years ago McCarrison pointed out that in Graves's disease it was probably altered qualitatively as well as quantitatively; for this reason such terms as dysthyroidic hyperthyroidism (De Quervain), thyrotoxicosis (Kocher), and thyroidism have been introduced and are preferable to the term hyperthyroidism. That this secretion produces myocardial degeneration is becoming more and more apparent. The morbid histology of the heart in Graves's disease has been drawn attention to by other workers. Thus in 1916 Fahr reported destructive lesions of the myocardium in five cases, two in girls of 21 who died from heart failure following partial thyroidectomy, one in a woman of 43, another in a woman of 53, and the fifth in a man of 48. In each case interstitial myocarditis was found, the cardiac muscle-fibres showing degenerative changes with infiltration of leucocytes between them and around the vessels.

Since Fahr's report Goodpasture has added two more cases, one a woman of 45, the other a man of the same age, but, as the latter patient was luetic, we are unable to regard this as a pure case of thyrotoxic myocarditis. All these cases, with the possible exception of the last, support the thesis with which we introduced this paper, that prolonged thyrotoxicosis results in definite myocardial degeneration.

If by drawing attention to the existence of thyrotoxic myocarditis and its nature we have also been able to indicate the importance of early and effective treatment of Graves's disease and other forms of thyroidism, we shall be more than gratified, for it will be obvious that the more advanced the changes in the heart muscle the greater the danger of any radical treatment and the less the degree of recovery to be expected therefrom.

Before concluding we should like to state how much indebted we are to both Sir Arthur Keith and Sir Bernard Spilsbury for their kindness in carefully examining these sections and encouraging us to record this case.

References.

Berry, Sir J.: The Thyroid Gland, 1901; A Review of the Present Position of Surgical Treatment of Exophthalmic Goitre, Brit. Jour. Surg., No. 4, 1914.
Crotti, A.: Thyroid and Thymus, 1922.
Fahr, Th.: Centralbl. f. allg. Path. u. pathol. Anat., 1916, xxvii., No. 1.
Goodall, Strickland: The Heart in Graves's Disease, Pract., July, 1920; Goitre Hearts, Med. Jour. and Record, Jan. 2nd, 1924.
Goodall and Rogers, Lambert: Blood Pressure in Graves's Disease, Brit. Med. Jour., Oct. 16th, 1920, p. 588; Thyroid Operations and Goitre Heart ("Kropfherz"), Internat. Jour. Med. Surg., January, 1926.
Goodpasture, E.: Jour. Amer. Med. Assoc., June 4th, 1921, p. 76.
MacCallum, W. G.: Text-book of Pathology, 1920.
Spilsbury, Sir B.: Sudden Death, Practitioner, 1917, p. 132.

[5] This case is of particular interest in view of the fact that some years ago one of us (J. S. G.) pointed out that whereas X ray treatment reduced or abolished most of the symptoms of thyrotoxicosis, it appeared to be less effective in arresting myocardial degeneration.

VICTORIA INFIRMARY, GLASGOW.—On Saturday last Sir John Gilmour, Secretary of State for Scotland, opened a new wing of this hospital, which includes an extension of the nurses' home.

NEW HOSPITAL SCHEME AT LIVERPOOL.—After five years' preparation a voluntary hospitals contributory scheme was approved at a meeting representative of the Liverpool Hospitals held at Liverpool on Feb. 25th. The scheme of the Liverpool Voluntary Hospitals Council is "to raise money by voluntary contributions for the support of hospitals and convalescent homes in Liverpool and to distribute the funds so collected in its discretion. A special appeal in order to start the fund will be made on June 1st. The scheme incorporates the Hospital Saturday and Sunday Funds, but does not apply to subscriptions, donations, or proceeds of social functions, and the like for individual hospitals. The constitution of the council was arranged, and included in the executive are six representatives each of employers and employees. Mr. Sydney Lamb, of New Wanstead, Essex, was appointed organising officer to the scheme at a salary of £1000 a year. Mr. Lamb was responsible for the great success of the Sheffield Voluntary Hospitals contributory scheme, upon which the Liverpool scheme is based.

Clinical and Laboratory Notes.

DIABETES INSIPIDUS

OCCURRING IN A CASE OF LYMPHATIC LEUKÆMIA OF ALEUKÆMIC TYPE.

BY J. H. SHELDON, M.D., M.R.C.P. LOND.,
HONORARY PHYSICIAN, WOLVERHAMPTON AND STAFFORDSHIRE HOSPITAL.

BEYOND a casual statement by Schmorl[1] in the course of a discussion, that the pituitary, and especially its anterior lobe, can be affected by leukæmic infiltration like the other organs of the body, there is almost complete absence in the literature of any references to infiltration of the pituitary in leukæmia. I can find no instance recorded of the association of lymphatic leukæmia, infiltration of the pituitary, and diabetes insipidus, such as occurred in the following case.

S. L., male, aged 20, was admitted to hospital on July 27th, 1923, as a suspected case of diphtheria, both tonsils being swollen and covered with patches of white exudate. He had been in perfect health till two years previously, when he noticed that the inguinal glands were swollen, though they caused him no trouble. After this the glands used to swell to a "considerable size" and then diminish again, but he thought so little of them that he never troubled to seek advice. This state of affairs continued for some 23 months, when on June 23rd, 1923, he left off work, owing to a swelling in the left side of the neck, presumably due to enlarged glands. Soon after this the glands on the right side also became enlarged and caused difficulty in swallowing. At the same time a rash appeared. Fourteen days before admission the glands in both axillæ became enlarged. The disease had thus apparently begun in the inguinal glands and remained confined to them for nearly two years before suddenly becoming generalised.

On admission the tongue was very red and raw. Both tonsils, the uvula, and soft palate were injected and swollen. The tonsils were covered with numerous circular patches of white membrane, which were easily stripped off. On culture a streptococcus only was obtained. The skin of the trunk was covered with a large number of firm pink plaques of oval or circular shape. Although pink was the predominant colour, a few had a purplish tint, and with the lapse of time this became true of all. With the exception of two plaques on the forehead the head and limbs were not affected by the eruption. The plaques varied in size from a pea to a half-crown. The glands in both inguinal regions, both axillæ, and both sides of the neck were enlarged, the biggest being of the size of a pigeon's egg.

There was stony dullness under the manubrium, which was regarded as being due to a tumour in the anterior mediastinum. This was confirmed by a skiagram, which Dr. G. E. Dyas kindly took for me.

Blood count on July 30th, 1923: Red cells, 4,820,000 per c.mm.; hæmoglobin, 75 per cent.; white cells, 7680 per c.mm.; polymorphonuclears, 63 per cent.; lymphocytes, 30 per cent.; large mononuclears, 3 per cent.; eosinophils, 3 per cent.; basophils, 1 per cent. The urine was normal. There was no enlargement of the liver or the spleen and the Wassermann reaction was negative.

Course of the Illness.

The throat nfection began to clear up after admission and entirely disappeared in a week. On August 3rd it was noted that the glands in the neck were increasing rapidly in size. At their height they reached the size of a bantam's egg, remained like that for a few days and then rapidly subsided. They caused great respiratory distress, but by the end of the month they were only just palpable. As they diminished the glands just above the right clavicle slowly increased in size. These in their turn diminished, and had disappeared by the middle of September. A week later the patient was suffering from cyanosis and great dyspnœa, with great enlargement of all the cervical glands, which had swollen to the size of a duck's egg in the course of three days. They slowly decreased, and by Oct. 5th were again only just palpable. As they waned the inguinal glands waxed, becoming very tender and as big as the cervical glands had lately been. On Oct. 17th the cervical glands again began to swell, and had reached their peak and almost disappeared by Nov. 4th when large glands appeared in the occipital region, remaining till his death five days later.

Blood count on Oct. 11th, 1923, showed: red cells, 3,482,000 per c.mm.; hæmoglobin, 55 per cent.; white cells, 7840 per c.mm.; polymorphonuclears, 41 per cent.; lymphocytes, 54 per cent.; large mononuclears, 6 per cent., with no eosinophils or basophils. On Nov. 1st, 1923, a count gave red cells, 3,416,000 per c.mm.; hæmoglobin, 55 per cent.: white cells, 12,360 per c.mm.; polymorphonuclears, 35 per cent.; lymphocytes, 62 per cent.; large mononuclears, 3 per cent., and no eosinophils or basophils.

The skin condition remained the same as when first seen until the end of October, when the nodules began to disappear, leaving a faint purplish-brown stain. Death was preceded by an outbreak of purpuric spots on both arms and legs, accompanied by a small epistaxis and three severe attacks of hæmatemesis, in the last of which he died. The temperature was irregular during the last three weeks of life, rising to 101° F.

Polyuria.

Polyuria began suddenly on Oct. 26th, 1923, the daily amount of urine having been normal until Oct. 24th. On Oct. 25th he complained of great thirst and passed 54 oz. of urine. On the 26th the output of urine rose to 112 oz. and thirst became a very urgent symptom. He was allowed an unrestricted intake of water. The intake of water and the output of urine bore a very close relation to each other, the total intake over the period Oct. 26th to Nov. 8th being 2250 oz., and the total output of urine over the same period being 2076 oz., the respective daily averages being an intake of 160·7 oz. against an output of 148·3 oz. The course of the polyuria is shown in the following table.

A = Intake of fluid in ounces. B = Output of urine in ounces.

Oct.	A	B	Oct.	A	B	Nov.	A	B
25th	?	54	31st	188	160	5th	220	174
26th	166	110	Nov.			6th	170	164
27th	192	136	1st	190	154	7th	126	136
28th*	210	206	2nd	140	126	8th	100	100
29th	170	152	3rd	106	98			
30th	180	156	4th	98	104		2250	2076

* On Oct. 28th: Pituitrin 0·5 c.cm. twice daily was begun and continued till death.

When first given the pituitrin greatly relieved the condition, but afterwards it had little effect. The variations from day to day were probably more influenced by changes in the amount and locality of the lymphocytic infiltration going on in the pituitary gland. The urine passed over this period had an average specific gravity of 1004, and had no abnormal constituents.

Post-mortem Examination.

The *heart* showed a large number of soft yellowish-white spots and streaks, infiltrating the whole myocardium, and visible on both pericardial and endocardial surfaces. Microscopically, these patches consisted of areas of lymphocytic infiltration between the muscle-fibres, which in places were widely separated. The cells consisted almost entirely of small lymphocytes.

The *lungs* were normal to the naked eye, but microscopically there was a general infiltration of the interalveolar tissue with small lymphocytes. The bronchial glands were enlarged and connected with a firm white mass which occupied the whole of the anterior mediastinum. This was composed of small round cells, exactly resembling lymphocytes, with a well-developed fibrous stroma. The *spleen* (13 oz.) was hard. Its cut surface was of a uniform dark-red colour, in which it was impossible to distinguish the Malpighian bodies. Microscopically, the splenic pulp was crowded with cells resembling small lymphocytes, which had obliterated the Malpighian bodies. The *liver* (60 oz.) was smooth and quite homogeneous, but histologically showed the same general lymphocytic infiltration as the other organs. This was most marked in the portal areas, but in many cases penetrated into the lobules. Both *kidneys* were much enlarged (R. 7¼ oz., L. 7¾ oz.) and on section had a mottled appearance, due to numerous yellow patches and streaks, the largest of which were of the size of a halfpenny. The renal tissue between these areas appeared to be quite normal. Microscopically, the kidneys were the subject of a diffuse infiltration with small lymphocytes, which were aggregated in places into patches of wide extent, especially in the neighbourhood of the tubules. The lymphocytic infiltration was heavier in the kidneys than in any other organ.

The brain was normal to the naked eye, but was unfortunately not examined microscopically. The *pituitary body* also appeared normal, but microscopically it was affected by the same infiltration with small lymphocytes that has been described in the other organs. This was of a diffuse character and affected all parts of the gland, though the pars anterior was the most heavily burdened, the

[1] Schmorl: Verhandl. d. Deutsch. Path. Gesellsch., 1914, xvii., 231.

lymphocytes in this region showing a tendency to accumulate in small masses.

The *lymphatic structures* throughout the body were greatly enlarged. In the intestines the Peyer's patches and solitary nodules were swollen. The lymphatic glands were enlarged in varying degrees, though all groups were affected. Histologically, in the smaller glands the normal structure could still be made out, though obscured by a general packing with small lymphocytes which in the larger glands had completely obliterated their structure. A section of one of the cutaneous nodules revealed a large irregular collection of lymphocytes, gathered especially round the hair follicles and sweat glands, and lying under the epidermis, which was intact. Bone-marrow was taken from the lower third of the femur. The normal hæmopoietic cells were recognisable, but the marrow was very cellular owing to a diffuse packing with lymphocytes.

Discussion.

There can be no doubt that this case was one of lymphatic leukæmia of the aleukæmic type, having a general lymphocytic infiltration of all the organs without the typical blood changes. Apart from the polyuria, the case is very similar to one reported by Blankenhorn and Goldblatt.[2] The disease apparently remained confined to the inguinal glands for two years and then suddenly became generalised. It is possible that the typical blood picture of lymphatic leukæmia might have come later, as there was a progressive anæmia, and the total white cells had increased while under observation from 7680 per c.mm. to 12,360 per c.mm. the percentage of lymphocytes rising from 30 to 62 per cent. This gives an increase in the actual number of lymphocytes of from 2304 per c.mm. to 7663 per c.mm.

The sudden onset of the polyuria is interesting, the urinary output rising in one day from 54 oz. to 110 oz. This may have been caused by a sudden infiltration of the pituitary, and certainly a rapid infiltration would be in keeping with the rest of the clinical picture. Thus the lymphatic glands were continually subject to periodic alterations of size, usually slowly, but on some occasions reaching a maximum in three days. The association of diabetes insipidus with lesions of the pituitary is well known, the pars anterior being as a rule either not affected or only partially damaged. In the present case an accurate geographical description of the pituitary lesion cannot be given, the infiltration being of a diffuse character.

Summary.

1. A case of aleukæmic leukæmia is described, with general lymphocytic infiltration of the organs, but without typical blood changes. 2. Death was preceded by a sudden attack of diabetes insipidus, with considerable daily variation in severity, and associated with lymphocytic infiltration of the pituitary gland.

A CASE OF MULTIPLE ANEURYSMS OF THE SPLENIC ARTERY.

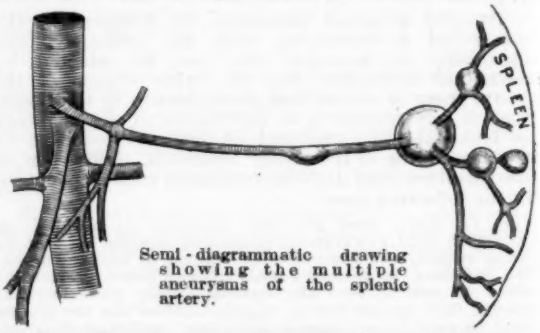
BY J. ALLAN BERRY, M.S. DURH., F.R.C.S. EDIN.,
MEDICAL SUPERINTENDENT, NAPIER HOSPITAL, N.Z.

ONLY a few cases of aneurysm of the splenic artery are mentioned in the literature, and owing to its rarity the present instance seems worthy of record.

The patient, a thin spare woman, aged about 60, was admitted to the Napier hospital on Nov. 4th, 1922, suffering from jaundice of about nine weeks' duration. Previous to the onset of the jaundice there was no history of indigestion, but since its appearance there had been pain in the epigastrium shortly after meals, associated with vomiting. On examination the patient was deeply jaundiced and a tender mass could be palpated in the gall-bladder. X ray examination showed the presence of stones in the gall-bladder, and a barium meal showed the stomach to be normal. There was no sugar in the urine and the Loewi test was negative.

On Nov. 17th an exploratory laparotomy was performed. There was very little hæmorrhage at the operation, hæmostatic serum having been administered previously. The gall-bladder was full of stones and was removed, and the common bile-duct drained. Masses of glands were noted in the gastro-hepatic omentum. A microscopical examination of the gall-bladder demonstrated a carcinoma of its neck. Following the operation the patient's condition remained satisfactory until signs of cerebral embolism appeared and she died half an hour later.

A limited post-mortem examination was made through the operation wound. Hard masses of glands were found surrounding the supra-duodenal portion of the common bile-duct, and secondary deposits were present in the liver.



Semi-diagrammatic drawing showing the multiple aneurysms of the splenic artery.

The heart showed no signs of endocarditis, and there was very little atheroma of the thoracic aorta. The splenic artery was found to be the site of multiple aneurysms so that part of the abdominal aorta, with the vessels of the cœliac axis and the spleen, was removed.

The accompanying diagram shows an abnormal arrangement of the cœliac axis and also shows the aneurysms. About an inch before the splenic artery divided into its branches is a slight dilatation of the lower part of its circumference, while at the point of bifurcation is an aneurysm roughly circular in outline, about an inch in diameter, and having calcified walls. Leading from this aneurysm are two vessels, on the superior branch after a course of about two inches is another aneurysm with calcified walls less than half an inch in diameter. On the superior division of the two into which the inferior trunk divides are two more calcified aneurysms, one springing from the other, each a little less than half an inch in diameter.

The X ray films did not show the shadows due to the calcified walls of the aneurysm; one showed the shadow due to the gall-stones, while the other, of a barium meal of the stomach, obliterated any shadows that might have been due to them.

One of the latest cases on record is that of Hogler,[1] who reports a case which he thinks is the only one in which a correct diagnosis was made during life. The symptoms were severe spinal pain with the development of a pulsating swelling in the left hypochondrium, over which a systolic bruit was heard. The patient died of intercurrent pancreatic cancer.

CEREBELLAR ABSCESS IN AN ELDERLY WOMAN.

BY W. S. THACKER-NEVILLE, M.D. DUB., F.R.C.S. EDIN.,
OPHTHALMOLOGIST AND LARYNGOLOGIST, DARLINGTON GENERAL HOSPITAL.

THE case here described presented certain features of unusual interest.

Mrs. P., aged 71, had been treated as an abdominal case for some time. She complained of earache in September, 1926, but recovered in a short time. At the commencement of December she developed symptoms that were looked upon as having their origin in the abdomen.

On *examination* on Jan. 7th last I found the patient lying on her left side. She complained of pain about her right ear and dizziness and vomiting if she moved, the vomiting being the most prominent symptom. The tympanic membrane showed a light reflex bright but shortened, and in the posterior superior quadrant a salmon-pink patch, like the centre patch seen in otosclerosis. The tuning-fork tests showed middle-ear involvement. Nystagmus of the

[2] Blankenhorn and Goldblatt: Jour. Amer. Med. Assoc., 1921, lxxvi., 583.

[1] Wien. Arch. f. inn. Med., August, 1920, p. 543.

third degree to the good ear was present. The caloric test was not performed as the patient's condition was poor. The mastoid process was slightly tender on the tip; there was no tenderness over the mastoid antrum.

From the absence of definite signs and the age of the patient a labyrinthine hæmorrhage was considered as a possible diagnosis, yet the tuning-fork tests and the slight pain in the ear decided me to do a paracentesis, which revealed thick yellow pus. The diagnosis of suppurative labyrinthitis was then made and it was resolved to operate.

The *operation* revealed a small quantity of thin muco-pus in a cancellous mastoid. The lateral sinus was white. On incision the sinus was empty, exposure far back towards the torcula revealed blood. On removing the bone anterior to the lateral sinus pus exuded from the bone, and on further exposure an abscess in the cerebellum with a well-formed wall was found. A tube was inserted in this cavity and the Neuman's labyrinth operation was performed. The patient was in excellent condition on Jan. 8th, but on the 9th the temperature rose and the patient became comatose and died.

The remarkable features of this case were the dresence of the light reflex and an almost normal tympanic membrane with mastoiditis, lateral sinus thrombosis, and cerebellar abscess. The infection evidently started in the mastoid and secondarily involved the middle ear. Furthermore, the case is remarkable in that symptoms directed the patient's doctor's attention to the abdomen, the presence of nystagmus being the only prominent aural sign, for both tympanic membranes had to be examined before one was convinced that the right was abnormal. As there was no history of trauma to the mastoid, which would make the region a *locus minoris resistentiæ* for organisms circulating in the blood, one must conclude that the infecting agent was brought directly into the antrum by the blood or through the Eustachian tube into the antrum without infection of the tympanic cavity. Such an infection is usually due to the *Streptococcus mucosus*, which gives a picture on the tympanic membrane like that of chronic catarrh and is sometimes treated for that with disastrous results.

The condition also reminds one of acute mastoiditis which develops in children after an attack of diarrhœa. In such cases the tympanic membrane is not ruptured and is white, the only abnormality present on the tympanic membrane being an absence of the light reflex.

Darlington.

Medical Societies.

MEDICO-LEGAL SOCIETY.

A MEETING of this Society was held on Feb. 24th, Sir WILLIAM WILLCOX in the chair, when Dr. FREDERICK J. MCCANN read a paper on

Cases of Medico-legal Interest in the Practice of Gynæcology.

Dealing first with virginity and defloration, Dr. McCann said that on medical evidence alone it was difficult, and sometimes impossible, to establish the fact that a woman was a virgo intacta. Mr. D. Cotes-Preedy had stated that "the presence of a hymen is generally received by the court as sufficient evidence of the accused being a virgo intacta." But the presence of an unruptured hymen was not absolute proof of virginity, nor did a torn hymen prove that a woman was not a virgo intacta; it was often impossible to be sure unless the vulva was seen soon after the attempt, before the torn surfaces could unite. A young woman arrested for loitering and prostitution was examined and found to have a well-developed semilunar hymen, thin, and readily distensible. In the centre was a small notch, and leading backwards from the notch was a tiny white scar, indicating that there had been a partial tear in this position, which had healed. He could not report that she was a virgo intacta, but said that she did not seem to have had repeated intercourse. Too often the hymen was torn during examinations without considering consequences, and the pelvic organs of virgins should be examined per rectum wherever possible. If the hymen had been injured, it should be repaired by accurate suture with fine catgut. Signs of virginity were sought in the hymen, fourchette, perineum, and vagina. The breasts gave no guidance, for even milk might be present in the virginal breast, infants sometimes being put to the breasts of a virgin. Sometimes a hymen had a vertical opening, and the inexperienced might consider that this was a rupture. What was of most importance in legal medicine was the texture and consistence of the hymen. A thin elastic membrane was not easily ruptured; if ruptured it bled little, and it could be pushed upwards by the male and satisfactory coitus ensue without rupture. Kanony had collected records of 43 cases of pregnancy in which the hymen remained unruptured. Coitus did not destroy the hymen, it only ruptured it in one or more places. In some cases the texture of the hymen was such that it was readily torn and bled freely; sometimes it had to be divided to permit of coitus. Much had been made in the courts of the possibility that the hymen might be absent from birth, but he had never encountered such a case. It might, however, be so altered by inflammation or injury that signs of virginity could not be determined.

The exanthemata and diphtheria had a great influence on the generative organs of the female child; inflammation might even result in an imperforate hymen or an imperforate vagina. The effect of masturbation was usually a dilatation of the hymeneal orifice, without evidence of rupture. The fourchette and the perineum might be torn by violent intercourse, or when the diameter of the penis was out of proportion to the aperture. The absence of such injury was no proof of virginity. No reliance could be placed on the absence of rugosity in the vaginal walls as a sign that penetration had occurred. All the signs of virginity might be present in a woman who was not a virgin, and all those signs might be absent in a virgin. He had been called to a woman, aged 60, who had advanced abdominal cancer. Her first husband had been impotent and had so remained until his death, and her second marriage had never been consummated. Her hymen was tough and resistant with a small central opening. He considered she was a virgo intacta despite 30 years of married life. Another woman, married eight years, had never had connexion. Both these women seemed very ignorant of sexual matters. In all cases of a difficult kind he suggested that an expert in gynæcology should be consulted.

Turning next to the consideration of rape, Dr. McCann said medical men not infrequently became the dupes of designing females through accepting statements which were not justified. It was not always possible to say whether the female sexual organs had suffered violence by the male or by other physical means. To come to the definition of rape, penetration to the vulva was said to be sufficient. In a recent case in which there was neither defloration nor signs of violence nor the presence of spermatozoa such a charge could not be sustained on medical evidence alone. The phrase "penetration to the vulva" was meaningless in the case of the child, because in the very young child the hymen projected beyond the level of the surrounding parts. In legal medicine the differences between the female child and the adult were often ignored. In adult females, unless defloration, violence, or the deposition of semen could be proved, the charge could not be sustained on medical grounds. In some of the cases which had come to his notice false charges had been made against men because of the existence of a purulent discharge in children. A purulent discharge from a child's vulva was not sufficient ground for a criminal charge; there might be an organism

closely resembling the gonococcus which had no relation to the disease. He thought that the law in relation to rape needed clearer definition; it did not keep pace with the advances in science. In most cases of alleged rape the charge should be one of indecent assault. The term "rape" should be restricted to cases in which penetration had been proved, or where considerable local injury had followed attempts at penetration.

Dealing with nubility, impotence, and sterility, Dr. McCann said that the law seemed to regard the female as a mere passive agent in the sexual act. He suggested that a nubile or marriageable woman was one whose sexual organs were normally developed or were without irremediable defect. The menstrual function was ignored in these words, for it could often be restored when absent. In one case both husband and wife seemed well developed but the marriage had not been consummated, and the judge pronounced a decree of nullity. Here a judicial warning would probably have had a salutary effect; sometimes friendly advice by the family doctor would obviate a judicial appeal later on. Impotence Dr. McCann would define as the failure of the power to copulate, or failure of the power to generate. Both might be present in the same individual. The failure to distinguish between these two struck at the root of the confusion on the subject in legal medicine. Sometimes a decree of nullity had been obtained against a male by a female, and subsequently that male had become the father of a family. Works on legal medicine too frequently overlooked the psychical influence in sexual desire; it explained some cases of impotence, at least temporary impotence. Sometimes owing to male impotence methods of sexual excitation had been employed which had had an injurious effect on the nervous system of the female. Impotence he regarded as much more common in the female than in the male; yet the woman was regarded as the mere passive agent, and if her vagina would admit penetration, she would not succeed in a nullity suit. As to sterility, generative incapacity on the part of the female rarely came before the courts, perhaps because of difficulty in establishing its existence. A woman with normal sexual organs might be successfully impregnated by one man and fail with another. He was sure that a slightly undersized uterus would carry a fœtus successfully to the end of gestation.

A young woman engaged to be married consulted him because she had never menstruated. She had an imperforate vagina and no uterus could be detected. Her fiancé urged that a segment of the small intestine should be transplanted into the region of the vagina to produce an artificial vagina. Dr. McCann advised against such an operation as it was dangerous and unjustifiable, and urged giving up the idea of marriage. She consulted another surgeon, who performed the operation, and it proved fatal.

Going on to speak of venereal disease and divorce, Dr. McCann said it was very necessary that the doctor who was first consulted should make a thorough examination of his patient, male or female, or consult with an expert without loss of time, as it might be difficult, even impossible, to obtain evidence at a later date. To establish the diagnosis of gonorrhœa in the female it was essential that secretion should be obtained for examination from the urethra, from the glands of Bartholin, or from the cervix uteri. Secretion from the vagina for this purpose was useless. Yet in a recent case smears taken from the vagina were offered as evidence. In order to detect the gonococcus, a sterilised platinum needle should be used to obtain specimens for microscopical examination, as well as to inoculate the culture medium. The science of bacteriology had not yet reached the degree of perfection which enabled a medical man to make positive assertions in the witness-box; he could only show that he had investigated a particular case with every care. The same applied to the diagnosis of syphilis.

Removal of both ovaries in a young woman might be followed, in the course of years, by such shrinking of the vagina that, in the event of her subsequent marriage, sexual intercourse might become difficult or impossible. Hysterctomy did not always banish sexual desire, but it interfered with sexual pleasure, for without a uterus there could be no orgasm. The question of operations on the female genitalia after marriage was an important one. If a woman who had undergone hysterectomy married without telling her future husband the nature of the operation she had undergone, could the man obtain a decree of nullity? A man who married a woman pregnant by another man could not obtain relief. Dr. McCann thought that the law should be altered to include the cases where the knowledge of a mutilating operation or the existence of pregnancy by another male was withheld. Many operations, moreover, left psychical effects of far-reaching importance, and this aspect would demand more attention in the future, as it loomed large in the patient's mental horizon.

Discussion.

Dr. M. I. FINUCANE agreed that the legal test as to whether a woman was a virgo intacta was a ridiculous one from the doctor's point of view.

Sir TRAVERS HUMPHREYS said that he was not aware that the law required that in order to justify a conviction for rape there should have been penetration of the vulva. Judges said that such a charge could not hold unless there had been some penetration, and left the matter there. He did not think that lawyers would quarrel with a doctor because he could not be quite sure whether a particular woman was a virgo intacta. He had been glad to note the careful way in which most medical witnesses gave their evidence in court, and the fact that they did not attempt to dogmatise was in their favour. A woman could be convicted of procuring a girl to become a prostitute even though the girl might be a virgo intacta. And a prostitute meant a female who, for money, gave her body to men for indecent practices, which did not necessarily include copulation.

Sir BERNARD SPILSBURY expressed his agreement with what Sir Travers Humphreys had said on the subject of penetration; he had always conceived that what was meant was some degree of penetration, not necessarily vulval. He asked at what age vulval penetration was said to be possible; did it date from puberty, or was there a period antecedent to that when it was possible? He agreed with what Dr. McCann had said about diagnosis of gonorrhœa in the female. It was difficult to get medical men to take those precautions which would enable pathologists to carry out a proper bacteriological examination. In suspected gonococcal infection of the female genital organs, evidence should not be given without complete bacteriological proof, in cultures as well as smears from any discharge. The difficulty was even greater in the dead body, when the gonococcus had died. He related a case in which, in a female child, gonorrhœa was suspected because of a vaginal discharge, and it was proved that the discharge was due to a long antecedent inflammation caused by a thread-worm. He hoped soon to lay before the Society the result of some investigations he had been making on a means of distinguishing between congenital conditions and those which were the result of injury. The elastic tissue of the skin was not re-formed after an injury had been sustained sufficient to cause a scar.

Mr. W. G. EARENGEY did not agree with those who asked for another definition of rape for legal purposes. The doctor could tell whether violence had been used in a given case, especially as most of the cases came before the doctor soon after the alleged attempts. And he did not think that judges were far behind the advances of science.

The CHAIRMAN thought that there was no great difficulty in deciding about penetration; usually there was a good deal of local evidence of violence. An important point was that these cases of attempted rape were surrounded by such a feeling of horror that

the scientific evidence often was not given calm consideration.

Dr. MCCANN, in a brief reply, pointed out how important in these cases was the evidence of the medical man who first saw the victim. Unless the child was seen fairly soon, healing of the hymen took place. Puberty was the earliest period at which vulval penetration was possible, unless there was precocious development of the sexual organs.

ROYAL SOCIETY OF MEDICINE.

SECTIONS OF MEDICINE AND DISEASES OF CHILDREN.

A JOINT meeting of these Sections was held on Feb. 25th, the chair being occupied by Dr. J. D. ROLLESTON, President of the Section of Children's Diseases.

Dr. E. W. GOODALL opened a discussion on

THE SERUM TREATMENT OF SCARLET FEVER.

He began by explaining that before he had formed a conclusion as to the efficacy of the treatment he had ceased to have first-hand opportunities for testing it. He assumed that the hæmolytic streptococcus of George and Gladys Dick was the true bacterial cause of the disease. Since 1910 the case mortality for scarlet fever in the Metropolitan Asylums Board hospitals had only once been above 2 per cent.—namely, in 1916. During the ten years that he had been at the North-Western Fever Hospital it was quite low, and in 1925 it was 1·01 per cent. Hence in the matter of the saving of life there was little room for further improvement. In most cases of diphtheria the condition was a toxæmia pure and simple, whereas in scarlet fever there was also bacteræmia. It was not claimed, he believed, that the scarlatinal antiserum was antibacterial as well as antitoxic. The following points should be considered: (1) Was serum treatment better than any other? (2) If so, how was this shown? (3) Did the results make it possible to distinguish between the toxæmic and the septic symptoms? (4) What was the correct dosage? In some cities in the United States in recent years, there had been a comparatively high death-rate from scarlet fever. In Eastern Europe and China the disease had recently been very severe. At the Government Isolation Hospital at Pekin serum had been found of little value in the toxic form of the disease, though later a serum produced by a different method had been of some use. Cushing, at the Alexandra Hospital, Montreal, had reported improvement after the use of convalescent serum for serious cases, and a number of observers had reported that it hastened the disappearance of symptoms. The earlier the remedy was given the better and surer was the result; it could hardly be expected to do much if given later than the fifth day. Of 56 patients to whom he had given this treatment four had died, but none from the uncomplicated disease. Forty-one of the patients had received the serum in the first three days of their illness. A study of these cases gave him the impression that a prima facie case had been made out in favour of the serum. Twenty-four of the patients had attacks of serum sickness, but only one of these was severe; one had an abscess at the site of the injection. Long ago he had seen good results in the disease from the use of a multivalent serum, probably from accidental presence of special hæmolytic streptococcus in the mixture. The unit-dosage system of administration had not been adopted in this country, as the methods of standardising the toxin and serum had not been satisfactory. In the United States the dosage was from 2000 to 10,000 units.

Discussion.

Dr. R. A. O'BRIEN said that he had only limited opportunities for judging clinically of the effects of the serum. He had, therefore, obtained the views of the superintendents of several hospitals outside London, especially in the North, where the disease seemed to be of a more severe type. Dr. W. T. Benson, of the City Hospital, Edinburgh, concluded that the administration of antitoxic serum in the first 48 hours of the disease had a very favourable influence on the specific toxæmia of scarlet fever; it relieved the more urgent symptoms of the acute stage, and seemed to reduce complications. It did not seem to be an absolute safeguard against septic complications in convalescence. In toxic cases the serum should be used either intravenously or subcutaneously at the earliest opportunity, and the dose should be repeated if necessary. Dr. Benson had treated 200 or 300 cases with the English concentrated serum, the usual dose being 10 c.cm.; 20 c.cm. was rarely required. Serum rashes were troublesome. Dr. Benson was not, however, prepared to discharge his patients in the third week of convalescence because they had had the serum. Dr. E. H. R. Harries had informed him that for eight months the concentrated antitoxin had been used at the City Hospital, Birmingham, for all cases except the mildest. Serum sickness was infrequent, and when it did occur it was but trifling. In the average case a dose of 10 c.cm. sufficed.

In Dr. O'Brien's view the problem of scarlet fever was one of late morbidity. It was impossible to foretell what complications a patient with a mild attack might develop in the second or third week. He did not find that the serum had any direct influence on the septic complications of the disease, but he would not feel justified in withholding serum from a severe case. He had never known a child contract scarlet fever after having been rendered Dick-negative by antitoxin, even if repeatedly exposed to infection. Dr. O'Brien said that Dr. Claude Rundle, of the Liverpool City Hospital, had used serum in about 100 cases, and there had been five deaths. His opinion was that many of the patients would have died if they had not had the treatment. All except one of the deaths were of patients with scarlet fever of the septic type who came under treatment late.

Dr. F. FOORD CAIGER said that he had not had the opportunity of trying the serum treatment as much as he would have liked, but the results following its use did not seem so far to have been very much better than those of earlier workers; the Warsaw results in 1894 had led to very great hopes for the future. It was scarcely to be expected that the Dick serum alone would do much in the septic form of the disease. He referred to the success of a multivalent serum for scarlet fever which was sent to him about 30 years ago by Prof. A. Besredka from Paris. It was derived from 20 strains of scarlatinal cocci. It was given to 44 patients who seemed sure to die, and the ultimate mortality amongst them was 36 per cent. In the severe cases, in which it was given on the fourth or fifth day, the mortality was 23 per cent.; of the patients who had it two days later 25 per cent. died, and amongst those who did not have it until the ninth day the mortality was 56 per cent.

The CHAIRMAN said that the case mortality from scarlet fever from 1874–79 was 13·9 per cent.—exactly the rate given for Warsaw during the first 26 weeks of 1926. During the years following 1879 there had been a gradual fall in the mortality, so that in 1900 it was 3 per cent., and in the last report of the Metropolitan Asylums Board it had come down to 1·1. The disease was also mild in France, but in the north it seemed to be of a much more severe type. He agreed that it was unnecessary to give serum to all patients with scarlet fever, especially as it might render them hypersensitive for a number of years. He had, therefore, tried the treatment in only 60 cases. These he divided into three classes: (*a*) 23 cases in which benefit was marked and immediate; (*b*) 24 cases showing definite benefit from it; and (*c*) 13 in which no benefit followed, amongst which five deaths occurred. Serum rash appeared in 26 cases, and in nine there was pyrexia, some constitutional disturbance, and secondary adenitis. The doses varied from 10 c.cm. to 30 or 40 c.cm., and they were seldom repeated. The Chairman raised the question whether earlier discharge of those cases which had the serum was

justifiable without a bacteriological examination. It was reported that the *Streptococcus scarlatinæ* persisted for some three to six weeks after the symptoms had subsided.

Sir FREDERICK ANDREWES discussed the question whether there was such a disease as scarlet fever clinically—i.e., whether it was a sharply defined entity, or whether it shaded off into other streptococcal manifestations, so that it was difficult to say what was scarlet fever and what was not. He had seen, in 35 years, hundreds of cases of doubtful scarlet fever from the wards, the origin of the infection being undetermined. The same sort of difficulty was encountered in regard to the bacteriological evidence. Was it always the same kind of streptococcus which caused recognisable scarlet fever? Dr. Griffith had declared that there were three different serological types of streptococci which could be obtained from the throats of scarlet fever patients, and the two sorts which were commonest in this country were not those which seemed to be commonest in the United States. Might it not be that in scarlet fever there were several different races of streptococci which formed one common toxin? A lady who was working in his laboratory had last summer got what was, clinically, acute rheumatic fever. She had been given some of Dr. O'Brien's concentrated antiscarlatinal serum with strikingly beneficial results. When, later, she had a relapse, another dose of it caused the temperature to come down to the normal in four hours and the pain to disappear from the joints.

Dr. ALEXANDER JOE agreed that in London, owing to the mildness of the infection, there was little opportunity for judging of the clinical value of this serum; in Edinburgh the disease was definitely more severe. Until he came to London he had not realised what serum sickness was; he did not know whether this was due to the greater sensitiveness of the children in the south or to the type of serum supplied for London. He thought a reason why good results did not follow in septic cases was that the serum was generally used too late. As to Sir Frederick Andrewes's remarks, Dr. Joe had heard a laryngologist say that after mastoid operations his patients often got erysipelas, whereas after tonsillectomies a much commoner sequel was scarlet fever.

Dr. C. J. MARTIN asked whether there was experience of an epidemic spread of any other form of streptococcal infection, such as occurred in scarlet fever.

Dr. J. E. MCCARTNEY referred to the case of a hospital maid who had scarlet fever, and contracted erysipelas when she was partially recovered from the first infection. After that, when the temperature came down, she had pyæmia and a hæmolytic streptococcus was isolated from the blood. Much more work was needed before laws could be laid down about the degree of infectivity of cases of scarlet fever. Much light might be gleaned by a close study of the organisms responsible for the failures.

Dr. H J. PARISH described experiments on the titration of scarlet fever antitoxin in rabbits (vide THE LANCET, Jan. 8th, p. 71).

Dr. GOODALL and Dr. O'BRIEN replied.

POST-GRADUATE HOSTEL.

THE final meeting of the Hostel was held at the Imperial Hotel on Feb. 24th, when Sir D'ARCY POWER opened a discussion on

Chronic Ulcers of the Tibia.

These he grouped into non-infective, infective, and malignant. Of the non-infective, he said, the commonest were the traumatic and the varicose. Less often seen, and nearly always in women, was the small rather punched-out ulcer which gave very great pain, probably because there was a nerve-ending in the centre. These could be cured by blistering or painting with silver nitrate. First among the infective was the tuberculous, for the syphilitic was by no means the commonest, as was often supposed. He had seen enormous numbers of osteomyelitic ulcers in Ireland, but fewer in this country. The infection started in the bone, extended through the skin, and ended as a chronic ulcer, usually associated with sinuses. Another and different type of ulcer was that associated with gangrene. He had seen large numbers of carcinomatous ulcers in regions where cancer appeared to be endemic. Malignant ulcers of the tibia were apt to go on for a very long time before killing the patient.

Treatment.

Dr. G. F. STEBBING spoke of his experience of ulcers in a Poor-law hospital where very large numbers were encountered. For over 15 years his institution had kept a ward of 90 beds for nothing else. The important points in treatment were cleanliness and early attention. An injury might heal quickly, but the resulting scar often had not enough blood-supply to stand active life; every little knock started the trouble again and finally periostitis set in. Such cases did best if the scar were excised and the area grafted on to the deep fascia. Much more difficult to treat were ulcers arising on a leg with faulty circulation, as with varicose veins and phlegmasia. One-third of his cases had been in women with a history of "white" leg after parturition, and in such women he had seen ulcers extending from knee to ankle and all round the leg. Amputation was the only treatment for most of them, but even ulcers of this class might heal after a time with the leg at rest in a raised position and with antiseptic dressings which were not changed too often. The complication of conservative treatment was that stasis produced adhesions in the tendon sheaths, with the result that the ankle appeared ankylosed, though really the lameness was due to matting of the tendons. Therefore it was not really worth wasting time healing up the ulcer if amputation could be performed. Some of the cases had septic infection through the deep fascia, and pus poured from the ulcer. The varicose ulcer was often associated with only a very slight degree of varicosity, but the circulation was always poor. The ulceration seemed to depend largely on the recurrent phlebitis that affected the varicose veins. It healed quickly and the leg kept well if the patient could be persuaded to sleep and spend a part of each day with her foot raised. The pain was ischæmic in nature and was greatly relieved by a wedge under the mattress, 9 inches high at the broad end. Hoskins made a special bed for such cases. Dr. Stebbings thought that parathyroid was not of much use. An elastic stocking was better than bandages if the patient could afford to have a really well-fitting one, renewed about twice a year. If there were varicose veins about the knee the stocking must be in two pieces so that bending the knee did not produce anæmia. Unfortunately patients had to earn their living, the leg got knocked, and the ulceration returned.

The Poor-law officer, Dr. Stebbing continued, saw very little tuberculous ulceration, and syphilitic ulcers, like all tertiary syphilitic phenomena, were becoming rarer and rarer. He had seen many of the so-called gangrenous ulcers, but they were not gangrenous in the ordinary sense of the term. The condition began as a little spot which rapidly spread over the leg until the skin sloughed and left an ulcer. This healed well and rapidly if treated with antiseptics, but if it were treated as an indolent ulcer for a long time and got a hard edge it would do badly, and matting of the tendons would probably occur. Osteomyelitic ulcers were becoming more uncommon as treatment improved; nowadays they were more often seen over the femur than over the tibia. One type of malignant ulcer began as a papule and grew without previous ulceration, starting apparently as a true carcinoma of the skin; a commoner form began on the site of a varicose ulcer and was seen also on the foot, even on the great toe, at the site of some chronic sepsis such as a bunion.

Dr. P. F. WATKIN said he had found lotio calaminæ very useful, and for tropical ulcerations he recommended irrigation by dropping methods or by soaking the leg for hours in a bath. The chief features of treatment were cleanliness, rest, and the application of an antiseptic, such as perchloride with a little salt.

Dr. STEBBING agreed that the problem was how to keep the part clean. The bath was not very comfortable, and he had found boric compresses better when once the skin was clean. All kinds of hyperæmic methods were useful—kaolin, glycerine pastes, radiant heat, massage, and electricity. If the scar were soft and could be pinched up recurrence was unlikely.

Dr. A. P. BERTWISTLE said that traumatic ulcers resulted from bruises and abrasions which were so insignificant that they were neglected. The causes of chronicity in an ulcer were: (1) Poor blood-supply. The deep fascia, the duty of which was largely to carry and support blood-vessels, joined with the periosteum of the tibia over its subcutaneous border, so that there were few vessels in the area. (2) Such ulcers became fixed at an early stage to the bone, which cut off the vascular supply to their base. If periostitis did not occur as the result of the blow, it would develop later. (3) The exposed position militated against rest. (4) The absence of fat in the subcutaneous fascia meant that there was no cushion to break the impact of a blow or make the part elastic. (5) The dependent position was not conducive to a good blood-supply. Abrasions, he said, should be allowed to dry, the resulting eschar being the best protective for them. In America they had tried electric drying as in shampooing. If dirt were ingrained hydrogen peroxide was beneficial for a day after which the wound should be allowed to dry. Lotio calaminæ worked like a charm in some cases. Rest in bed was essential if there were varicose veins. Iodoform disguised the smell of putrefaction, but iodine was bad and caused much pain. Boric ointment in a paraffin basis was useful at certain stages.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF OBSTETRICS.

A MEETING of this Section was held on Feb. 4th, Dr. LOUIS CASSIDY (in the absence of the President) in the chair, when Dr. BETHEL SOLOMONS read a communication entitled

Rupture of the Uterus Treated by Plugging the Rent.

The patient was aged 35 and had had three normal labours. During the second stage of labour her doctor had given her 1 c.cm. of pituitrin and as there was no advance after an hour had applied forceps and delivered a stillborn child. Efforts to express the placenta and to remove it manually had failed.

On admission she was pulseless and in a condition of profound shock, just conscious. Routine treatment showed little reaction and the placenta was sought for. The cervix was closed, but on following the cord it was found that the uterus was separated from the fornix on the left side and that the placenta was among the intestines; it was removed. Intestines appeared at the vaginal vault and the rent was plugged with a large tampon of iodoform gauze. Two days later symptoms of intestinal obstruction appeared, and the gauze was removed. For 14 days she got on well, but there was always some distension without absolute rigidity. Symptoms of slight peritonitis then appeared and the abdomen was drained; two pints of foul serosanguinous fluid escaped and a drainage-tube was inserted.

Since then, said Dr. Solomons, she has progressed well, but there was still some discharge from the wound, which it was hoped would clear up with ultra-violet rays. This patient would have died had laparotomy been done; she had lived after the treatment of plugging. Plugging was a valuable aid to obstetrical technique and could be carried out by the genera practitioner. The rupture had occurred probably from the overdose of pituitrin in the second stage of labour. 1 c.cm. was far too large a dose. If pituitrin was given at all, two or three minims should suffice, and it should only be given in selected cases.

The CHAIRMAN agreed that when a patient came to hospital in a condition of shock, as in this case, there was nothing to be gained by laparotomy. Most of these cases, if they did not die of shock, died from sepsis within ten days. He mentioned the statistics published by Döderlein from cases of rupture of the uterus at the clinic at Munich during the last 50 years, when there had been 50 cases. Seven of the cases had been untreated and had died. Ten had had laparotomy performed, and of these 60 per cent. had recovered. The other cases had been treated in various ways. Eight of them had been treated in a way similar to that described by Dr. Solomons and three had recovered. On the whole the average of recovery had been between 40 and 50 per cent. during the last 50 years. He thought that in this case the large amount of pituitrin which had been given was probably responsible for the condition. If cases were not too shocked he thought they were better treated by laparotomy; but a great deal depended on the method by which the shock had been brought about, and also on the time which has elapsed since the rupture had taken place and when the patient was seen.

Mr. W. PEARSON said that it was very difficult in this case to decide what to do after the primary shock had been overcome. It was a question of either peritonitis or intestinal obstruction. It proved, however, to be an obstruction, and the patient had done fairly well for a fortnight. After that time the temperature had risen and the abdomen had become distended and soft; but it was plain that it was not an obstruction, as the bowels moved if purgative or enemata were given. There was a good deal of dullness in the right iliac fossa, extending across to the middle line, and the probability was that it was a case of mild peritonitis. The abdomen was opened, and peritonitis was found; there was a great deal of turbid fluid and also adhesions the whole way across to the abdominal wall.

Dr. CANNON said that these cases were rare. He personally had only come across two. One was caused by the injudicious use of pituitrin, and the baby had died. The other was a case of spontaneous rupture from a previous scar. He did not think that there was any great danger of sepsis if the gauze was left on for 10 or 15 days. He thought that if the fœtus was completely in the peritoneal cavity it would be difficult to deliver the baby, unless the scar was extended; and it would add to the shock to deliver the baby per vaginam. In these cases he thought laparotomy should be done.

Prof. DAVIDSON asked where the rupture was in this case; was it in the uterus or not? He had had three cases of rupture of the uterus, two following version and one following a breech. In the first case the rupture had been discovered when trying to extract the placenta; the rupture was in the fornix. The placenta was removed by traction of the cord and the hand was never inserted at all. He thought that this was a very good point in technique, as in this way it might be possible to avoid introducing sepsis into the abdominal wall. In all his cases the wound had healed. He asked if there was any possibility of the collection of fluid in the abdomen being urine, as he thought perhaps the bladder had been injured by the rupture, as sometimes the bladder was concerned in cases of ruptured uteri.

Dr. SOLOMONS, in reply, said that he had met three cases of rupture of the uterus in the past three months—the one he had reported, which lived; one of quiet rupture which died; and another one which occurred on the previous day where there was a spouting uterine artery. In this last case hysterectomy had been necessary and the patient was still alive. Plugging was the best treatment when possible, but there were some cases in which laparotomy alone could be done. The practitioner must choose his case for

treatment. In the one he had described the uterus was completely separated from the vaginal vault, and he believed that the gauze had temporarily obstructed the bowel—a complication he had never before encountered. At the time of the second operation ileus from the peritonitic fluid was the trouble.

Dr. SOLOMONS also read notes on Epistaxis as a Symptom of Toxæmia of Pregnancy.

Prof. DAVIDSON showed a case of Salpingo-vesical Fistula.

EDINBURGH OBSTETRICAL SOCIETY.

AT a meeting of this Society held on Feb. 9th Prof. R. W. JOHNSTONE, the President, took the chair, and Dr. FARQUHAR MURRAY (Newcastle) read a paper on

Rupture and Inversion of the Uterus.

He objected to the terms complete and incomplete rupture, suggesting that they should be replaced by intra- and extra-peritoneal rupture. The chance of rupture of the scar of an old Cæsarean section was, he thought, greatly exaggerated, but it should be kept in mind, and in such a case the uterus should be spared all possible stress at subsequent confinements. During the last five years he had performed or had records of 50 repeat sections, and none had shown evidence of imminent rupture. Though in some of them the area of scar tissue was thinner than the surrounding muscle, it was in all cases tough and firm. If a scar should rupture or become thinned out at a future labour, the wound edges should be excised before resuture so that healthy muscle would be reached on both sides of the wound. The worst traumatic ruptures seemed to occur after versions performed when the uterus was tightly contracted and Bandl's ring greatly in evidence. To avoid such a risk, perforation of the head, followed by compression with the hand, was advisable, a careful version then being performed; with this treatment the lower uterine segment would not be subjected to so great a strain. After a difficult version manual removal of the placenta was also desirable, partly, diminish the risk of post-partum hæmorrhage, but mainly in order to explore the uterus thoroughly so that any rent in its wall might be detected. Dr. Murray was surprised at the degree of trauma to the cervix caused by spontaneous deliveries, even when the fœtus was as premature as at the seventh month. Some of these lacerations spread up to the body of the uterus and cause repeated abortions and premature labours. Curettage did not help the furtherance of pregnancy and cervical repair might have to be done. As the extent of the tear could not be definitely determined from below and dissection from the vagina was apt to imperil the ureter and might tear into the uterine vessels, Dr. Murray recommended an abdominal operation for the efficient suture of the tear.

Describing a number of cases of inversion of the uterus, Dr. Murray said that he had difficulty in accepting the usual explanations of its causation, as he had noted how difficult it was to cause inversion of the uterus directly with the hands in a Cæsarean section and also how often a vigorous Credé was practised without any untoward result. He thought that the arrangement of the uterine muscle played a definite part in the process, as in several Cæsarean sections he had noted that the thick part of the uterus was the centre whereas the upper part of the uterus was nearly as thin as the lower uterine segment. It would be, therefore, quite easy for the thin portion to be pushed, pulled, or even spontaneously invaginated and gripped by the thicker zone of muscle.

Dr. RALPH LODGE then read a communication on

Hydatidiform Mole,

in which he reviewed 37 cases treated in the Royal Infirmary or Royal Maternity Hospital since 1922. About 70 per cent. of the cases, he said, occurred in the third decade of life and only 8 per cent. after the age of 40 years; 30 per cent. occurred in primigravidæ. The clinical features noted were mostly those usually described, though a "brownish discharge" was often complained of. Severe vomiting was a common symptom and it was interesting to note that 50 per cent. of the patients had albuminuria. The Wassermann reaction was negative in all cases. Nineteen cases, he said, had been followed up and only one had developed chorion epithelioma. He had discovered by investigating the records of the various pathological laboratories in the city that in Edinburgh and the surrounding districts hydatidiform mole was extremely rare, only six cases having been reported upon in nearly ten years. He thought that immediate curettage after expulsion of a mole should not be done, as his statistics of treatment showed that this operation was frequently followed by a morbid convalescence, whereas if any symptoms should warrant curettage and this were done at a later date the morbidity was not nearly so great. He found that the complications which were most common after expulsion were first and foremost, sepsis (46 per cent. having a morbid convalescence), and then hæmorrhage (8 per cent. having severe hæmorrhage), and then development of chorion epithelioma (1 case). Perforation of the uterus did not occur in the series. Vaginal hysterotomy had proved satisfactory and abdominal hysterotomy was also useful sometimes, especially when the uterus was as large as with a full-time pregnancy.

JAMES MACKENZIE INSTITUTE FOR CLINICAL RESEARCH.

ON Feb. 22nd Dr. A. Rowand read a paper on Oxaluria, with special reference to its occurrence in children. He pointed out that the term oxaluria was of very vague significance and was applied to a variety of conditions. As a condition with clinical symptoms it was first described about the middle of last century. A chronological survey of the opinions expressed in clinical textbooks from the days of Golding Bird showed that the tendency had been to lay less and less stress on any possible causal connexion between the oxalates and the general symptoms, and to regard them as having a common origin in some disorder of metabolism. The possible sources of oxalates were various, and therefore it could not be said that the presence of oxalate crystals in the urine indicated one definite error of metabolism. Moreover, there were individual idiosyncrasies. Of two individuals on the same diet one might show a large deposit of oxalates in the urine, while in the urine of the other no oxalates could be found. This might happen even when substances rich in oxalic acid, such as rhubarb, were being taken. Again, the occurrence of hæmaturia was apt to be regarded lightly if many oxalate crystals were present in the urine, but probably in a healthy urinary tract irritation by the crystals was unlikely to cause such a serious symptom. All writers laid stress on the danger of the formation of calculi, but this was not solely dependent on the amount of calculous material in the urine. Benjamin Moore had shown that in the core of a calculus some colloidal substance was present in association with the calcium oxalate. It was not suggested that the occurrence of oxalate crystals in the urine of children was of greater significance than in adults. But the urine of a large number of children who came to the institute for periodic observation provided a valuable field for study. Specimens were examined at every visit, and as they were voided at the institute it would be possible to determine the extent to which the presence of oxalate crystals in fresh urine was associated with symptoms of impaired health. The investigation had been in progress for about a year. In only 14 per cent. of the specimens had oxalate crystals been found, though 30 per cent. to 40 per cent. was the figure commonly given. This lower percentage might be due to the fact that all the specimens were freshly voided, and that a large proportion of the children were in good health. In about 20 per cent. of cases traces of protein had been associated with the oxalates. Red blood cells were only found in a very small proportion of the specimens. There was some ground for believing that not only the number but the nature of the crystals might be of special significance. Refractile particles and minute octohedra appeared to be especially associated with symptoms of disordered metabolism and impaired health. But the investigation had not proceeded far enough to make it justifiable to pronounce any definite opinion on this matter.

Reviews and Notices of Books.

ARTIFICIAL LIGHT TREATMENT OF CHILDREN.

By KATHERINE M. L. GAMGEE, M.R.C.S., L.R.C.P., D.P.H. London: H. K. Lewis and Co., Ltd. 1927. Pp. 172. 10*s.* 6*d.*

THIS book embodies the results of the author's experience in a children's light clinic in an industrial town and contains much information which will be of practical assistance to all who wish to undertake light treatment for children. A summary is given of the essentials of the rationale and technique of artificial heliotherapy and of the routine administration of the clinic. The advantages and disadvantages of the carbon arc, mercury-vapour bath, and tungsten arc are clearly indicated; the author considers that, when the apparatus must be limited the air-cooled mercury-vapour bath is the most generally useful lamp for the treatment of children. The part of the book devoted to clinical results is largely concerned with the treatment of rickets and spasmophilia. The results obtained were undoubtedly good, as is demonstrated by the photographs and radiograms shown. The efficacy of artificial heliotherapy in cases of this type will hardly be called in question; it is, perhaps, a defect of the book that other types in whom the indication for radiation is less obvious are not discussed more critically. In the classification of cases suitable for treatment "nervous children" are included, but the book yields no real evidence that neuroses of a non-spasmophilic nature are susceptible to radiation. Still more questionable is the inclusion of the "mentally dull and backward child . . . . and also the child that gives signs of being mentally abnormal or mentally deficient." No further reference is made to cases of this type, and we suggest that claims should not be made unless supported by definite evidence, or disappointment may be caused. An interesting feature of the course of many rickety patients was the progressive increase in hæmoglobin percentage. Due prominence is given to the dangers of radiation in children with active tubercle.

This book is clearly written, adequately illustrated, and of convenient size, and should well fulfil the purpose for which it was written.

X RAY APPARATUS, ITS ARRANGEMENT AND USE.

By P. K. BOWES, M.A., B.Sc. Examination for M.S.R. (Dist.); Hon. Radiographer to the Kent and Canterbury Hospital, Canterbury. London: H. K. Lewis and Co., Ltd. 1926. Pp. 196. 7*s.* 6*d.*

THOUGH this book is primarily written for those taking the various examinations for radiographers, it should prove useful to doctors who want to get a general idea of the way in which the component parts of an X ray apparatus work, and how it is that they sometimes do not work. He will find here not only this information but also to what general uses the X rays, once produced, may be put. Other chapters are devoted to a description of the means employed to control and measure the output of X rays from the bulb.

The chapter on the nature of X rays is less satisfactory than the rest. In speaking of the electron, the author says, "the charge on each particle also is invariable and is that carried by the hydrogen ion in liquid electrolysis," and, in talking about corpuscular rays, the reader is told, "the corpuscular rays have been found to be negatively charged particles called corpuscles which are given off in large quantities at very great speed." From these two statements, one would hardly guess at the identity of electron and corpuscle. Some of the clear line drawings are spoilt by the attempt of the author to draw circles with some instrument other than a compass. But on the whole defects are few and of minor importance in a reasonably priced volume which covers the interests of an increasing number of people.

THE TUBERCULOUS PATIENT.

Handbuch der Tuberkulose—Fürsorge. By Dr. KARL HEINZ BLÜMEL (Halle) and others. Munich: J. F. Lehmanns. 1926. Vol. I., pp. 457. M.249. Vol. II., pp. 533. M.270.

THIS work is "a comprehensive text-book on the care and control of the tuberculous patient." Each section is allotted to an expert.

The first volume is divided into two portions, the former dealing with the social and preventive medicine aspects of the subject, the latter being pathological and clinical. The hiatus between the two parts is distinct and if a second edition is called for they might with advantage be issued as separate volumes. The book opens with a historical survey of the subjects and then deals, in succession, with German legislation, statistics, the achievements of the antituberculosis campaign, and the regulation, management, and diagnosis of cases in the tuberculosis dispensaries. Early pioneer work and the later and more elaborate forms of administrations are described. The general editor, Dr. Blümel, is justifiably proud of the German pioneers who blazed the trail in the exploration of tuberculosis—Brehmer, Koch, Röntgen, and Flügge. A long section of more than 80 pages is devoted to the statutory provisions which Germany has enacted since 1884 for dealing with invalidity, infant and juvenile welfare work, industrial hygiene, and housing in relation to tuberculosis. Especially important is a section dealing with the recent legislation of 1924 with regard to social insurance and concluding with a critical survey of the aim of social legislation in relation to tuberculosis. A short essay on notification in Germany and other countries is also included. The death-rates from tuberculosis in the different German states are given up to and including the year 1924. As might be expected, these figures show very high peaks for the war years—culminating in a record in 1919, and slowly returning to pre-war figures thereafter. The work of the antituberculosis campaign is shown in a specimen financial budget of the German Central Committee for 1925–26 and in various specimen forms for the compiling of statistics of cases treated. These forms are similar to those used in dispensaries in this country. Case sheets, the arrangement and organisation of the dispensaries, the provision and management of X ray plants in dispensaries, and other questions which exercise the minds of tuberculosis officers all receive careful consideration. Little need be said with regard to the clinical portion of the volume, for books on this subject are now legion and it is becoming more and more difficult to set old facts in a new light. Suffice it to say that the salient facts are clearly and concisely set forth with due emphasis on the right points. For the English reader the preventive medicine sections are the most interesting as a demonstration of the thorough way in which the German antituberculosis campaign is carried out. Numerous graphs, diagrams, illustrations, and useful bibliographies are included. A spot map or geographical diagram illustrating the organisation of the preventive work in town and country in Germany would have been useful to the foreign reader.

The second volume contains sections on the prevention of tuberculosis, on treatment from the point of view of the social worker, on dispensary statistics, on education, and on the antituberculosis campaign in other countries. The discussion on prevention is based on the modern conception of a primary infection in childhood. It is a careful analysis of the "contact" question, from which the writer draws the conclusion that chronic disease in childhood is generally an intrafamiliar and acute disease an extrafamiliar infection. The chapter on housing

shows that Germany is faced with the same economic problems as ourselves, problems which are indeed world wide at the present time. The chapter on disinfection also stresses the same point—viz., the high cost of disinfection when thoroughly carried out. One district is quoted in which it was possible to effect household disinfection after the death of a tuberculous patient in only 57·7 per cent. of instances. Amongst other valuable information given in this chapter is an inquiry into the relative cost and sterilising value of antiseptics. Forest schools, sanatoriums (with plans for construction), and the colony system all receive attention. Much emphasis is laid on education propaganda and special chapters are devoted to the patient in relation to the family, the nursing sister, the medical student, the practitioner, the school, and the press.

THE ABDOMEN.

Anatomie Medico-Chirurgicale de l'Abdomen: III., la Region Lombaire et le Petit Bassin. Par RAYMOND GREGOIRE. Paris: J. B. Baillière et Fils. 1926. Pp. 304. Fr.30

THE third, and last, volume of Prof. Gregoire's original work on the abdomen is disappointing; this feeling is really due, in large part, to the vivid impression left on us by the last volume of the series. Nevertheless the book is a disappointment in other ways also. We refer especially to the confused impression which it gives, possibly owing to the arrangement or order in which the separate parts are considered. That the matter itself is good goes without saying, in view of the reputation of the author, but the book does not give us the same clear mental pictures of the parts as were suggested by the admirable descriptions in the earlier volumes. This is especially noticeable in the section dealing with the pelvic organs, where the accounts seem meagre and disconnected. However, the completed work, as a whole, is one of definite medico-surgical value.

A FIRST COURSE IN HYGIENE.

Seventh edition. By ROBERT A. LYSTER, M.D., B.Sc. Lond., D.P.H. Revised and enlarged by Colonel R. J. BLACKHAM, C.B., D.S.O., M.D., D.P.H. Lond. London: W. B. Clive. 1926. Pp. 335. 4*s*.

THIS little book covers a wide field, ranging in 22 chapters from the anatomical structure and functions of the body and its various systems through the usual gamut of information regarding ventilation, foodstuffs, personal hygiene, soils and sites, water-supplies, housing, cleansing, and refuse disposal, to elementary first-aid, communicable diseases, and disinfection. The excellent policy is adopted of introducing each practical aspect of hygiene with an elementary exposition of the physiological and anatomical problems involved. There are numerous illustrations and each chapter concludes with instructions for the carrying out of simple illustrative experiments. Necessarily it is potted knowledge of the kind which external examinations are encouraging examinees to absorb.

The book presents the unevenness associated with attempts to bring an old work up to date. While there is quite adequate consideration of the accessory food factors, the almost equally important question of the balance of amino-acids in proteins is overlooked, and although the influence of irradiation on cholesterol is casually mentioned, the physiological influence of the deprivation of light, and more especially of ultra-violet rays, on the human organism is entirely neglected. Some inkling of present day ideas about ventilation is contained in the chapter on air and respiration, but it is counteracted under "ventilation" by the emphasis laid on "organic impurities." Measles is described without Koplik's spots and we are told that "all contacts [with enteric fever] . . . . should be quarantined for a month." Disinfection is dealt with in much detail, but no mention is made of modern views as to the relative importance of disinfection among the munitions of hygiene. The task of writing or revising a book of this kind is an unenviable one and we do not wish to suggest that this one is not more than worth the exceedingly low price at which it is sold, but the announcement that it has been "brought thoroughly up to date" can hardly be substantiated. The danger is that it will be found difficult, as our knowledge advances, to re-educate the increasing body of persons who are acquiring from small manuals dogmatic information which is even now questioned in enlightened circles.

THE NORMAL CHILD.

By B. SACHS, M.D. New York: Paul B. Hoeber. 1926. Pp. 111. $1.50.

THIS little book sets out the substance, presented in a form intended for parents and teachers, of the chapter on the Normal Child in Sachs and Hausman's recent work on Nervous and Mental Disorders from Birth through Adolescence. The author's attitude towards many problems of the development of the child is decidedly conservative and may even be considered reactionary by the adherents of some modern cults. His advice to parents throughout the book is to be guided by common sense and not by psychological theories. While he holds no brief for the current methods of intelligence-testing and the inferences drawn from them, or for the behaviourist point of view, it is the Freudian interpretation of psychological mechanisms, particularly as it involves the relation of the child to family and environment, that is the principal object of his attack. In a chapter entitled "The Evils of Psycho-Analysis" the whole structure of Freudian psychology is represented to the reader as unscientific in theory and mischievous in its application to the upbringing of the child.

On the positive side the book contains much valuable advice, which may bring assistance and relief to parents who have received from contemporary literature the impression that discipline and parental influence have no place in modern child-training.

SOLUBLE AND INSOLUBLE BISMUTH SALTS IN SYPHILIS.

Solubles ou Insolubles, le Benzo-Bismuth en Syphilithérapie. Par le Dr. HENRI DROUIN, ex Chef de Laboratoire a l'Hôpital Broca; Lauréat de la Faculté. Paris: Editions Paul-Martial. Pp. 96. Fr.6.

Dr. Drouin, in this monograph, makes out a good case for the administration of soluble salts of benzo-bismuth in syphilis, and is, indeed, most spirited in their defence. After experiments on rabbits and guinea-pigs, and from observation on patients since 1919, he is firm in the belief that administration of trioxybismutho-benzoate of soda, in sulphuretted aqueous solution, administered by the subcutaneous or intramuscular route, is better tolerated both generally and at the site of injection than the insoluble salts. He also considers the drug to be less toxic, better eliminated, and more easily handled. Of the insoluble salts he seems to favour only the quinine-iodo-bismuthate preparations. Syphilologists in this country have not so far come to this conclusion, but have found the tartro-bismuthates and the hydroxides of bismuth, as well as quinine-iodo-bismuth preparations effective both in clearing syphilitic lesions and in changing positive Wassermann reactions to negative, with relatively little toxicity.

WEST KENT MEDICO-CHIRURGICAL SOCIETY.—A meeting will be held at the Miller General Hospital, Greenwich, on Friday, March 11th, at 8.45 P.M. Dr. J. L. Birley will give an address on Some Problems in the Treatment of Neurosyphilis.

THE LANCET.

LONDON: SATURDAY, MARCH 5, 1927.

PROGRESS IN RESEARCH ON FOOT-AND-MOUTH DISEASE.

THE Foot-and-Mouth Disease Research Committee, of which the present Chairman is Dr. CHARLES J. MARTIN, has just issued its Second Progress Report.[1] The Committee was appointed by the Ministry of Agriculture in 1924 and during the past year has suffered serious loss by the deaths of Sir WILLIAM LEISHMAN, the chairman, and Sir STEWART STOCKMAN. The report contains information of great interest bearing especially on the methods by which the disease is spread and on attempts to produce artificial immunity. There are three appendices: the first, by the late Sir STEWART STOCKMAN and Mr. F. C. MINETT, gives details of the work carried out at the laboratories of the Ministry at New Haw and at the Pirbright Experimental Station; the second is by Dr. S. P. BEDSON, Mrs. Y. M. BURBURY, and Dr. H. B. MAITLAND from the Lister Institute; and the last contains a bibliography of foot-and-mouth disease since the beginning of 1924. The number of experiments and conclusions recorded, and the chief results in the directions indicated, follow.

Most previous observers had emphasised the inability of the virus to resist drying. Indeed, in 1909 LÖFFLER laid down that only under moist conditions could it survive in the outside world, although it is true that ROUX, VALLÉE, CARRÉ, and NOCARD recorded experiments showing that vesical fluid rapidly dried in vacuo may sometimes survive for as many as 18 days. Experiments recorded in the present report show that when dried on a glass slide, virus in diluted filtrate of vesical fluid will survive over pure sulphuric acid for a year, and that when it is placed on favourable material, and dried under ordinary atmospheric conditions in the laboratory, the survival may continue for several weeks. On wool or filter paper the virus did not remain active longer than a week, but when allowed to dry on hay, bran, or flour, without special precautions except avoidance of light, the virus was found to be infective for guinea-pigs after 12, 20, and 7 weeks respectively. Such surprising viability on materials used as fodder cannot be without practical significance, and it is interesting to note that TRAUTWEIN[2] has also recently published evidence of the resistance of the virus to drying for long periods, especially when contained in pieces of epithelium. The danger from these sources has been brought home by the discovery that the skin on the feet and the bone-marrow of pigs killed during the infective stage may not only contain active virus demonstrable by experiment with guinea-pigs, but may infect healthy pigs, especially if the bones are broken up and fed to these animals. These facts, and the discovery that carcasses of pigs showing lesions of the disease had been imported during the past year into this country and could be made to reproduce the disease experimentally, have materially aided the development of preventive measures. Knowledge has been further advanced by a series of experiments on the survival of virus in carcasses under varying conditions, including burial and preservation in brine.

The other investigations in the report and which may have far-reaching results are those on the protection of guinea-pigs by a non-infective vaccine made with dilute vesical fluid treated with formalin. The protection against inoculation with the virus afforded to guinea-pigs by a single dose of this vaccine is very striking, and a great many observations on the dosage and degree of resulting immunity are recorded. So far the experiments have been made almost entirely with these animals, but there is evidence that an intramuscular dose of formalised vaccine may protect a calf against the same strain of virus also given intramuscularly. The protection in this way of highly susceptible animals such as cattle and pigs against natural infection has not yet been achieved, though VALLÉE, CARRÉ, and RINJARD last year reported a success with a formalised vaccine followed by a living dose of virus. The subject of immunity to foot-and-mouth disease is complicated by the existence of the two distinct types, described by VALLÉE, which do not give protection, the one against the other. Confirmation of this observation is also to be found in the report. It may be noted that WALDMANN and TRAUTWEIN have recently described at least three separate types of the disease in Germany where the existence of more than one type was not at first accepted. A large amount of work has also been done on the immunity of experimental animals, the testing of protective serum, and its mode of action. Experiments on the infection of rabbits, cats, dogs, and birds are also recorded; all these animals can be infected experimentally but only rarely, if ever, prove infective for others. Though these are of considerable interest and importance from the theoretical point of view, they do not appear to have much immediate practical application. Further attempts to culture the virus on artificial media have proved unavailing. On the whole, however, the Second Progress Report, besides providing much new and interesting information about this typical example of the filtrable viruses and the disease which it produces, encourages the hope that the Committee's labours will lead to further results of great importance.

[1] Second Progress Report: Foot-and-Mouth Disease Research Committee. H.M. Stationery Office. 3s. net.
[2] Archiv für wissenschaftliche und praktische Tierheilkunde, 1926, liv., 273.

QUALIFYING EXAMINATIONS FOR NURSES.

THE qualities needed for looking after the sick are largely temperamental, and of numerous women it has been said that they were born nurses. This means that nursing must always be a vocation—that it is not a mere trade in which the most skilful are necessarily the most successful; and the distinction is especially important to remember now that State examinations have to be passed before a nurse can enter her profession. It is not enough to be born, she must be registered as well; and though this is admittedly desirable it introduces a principle which may easily be carried too far. A qualifying examination is always dangerous, because it lays emphasis on certain attributes in the candidate, and it is necessary to be careful that these attributes shall be those on which efficiency depends. There are special reasons, moreover, for care in choosing examinational standards for nurses. The first is that since registration was devised as a means of raising the status of the nursing profession, there is a risk of the standards being set too high by people who have in mind an ideal which is for the time being unattainable; any new mechanism of progress is liable at first to over-use. The second reason is that at the present time there is a shortage

of candidates for the nursing profession and it would be sad if either the qualifying examinations, the study required for them, or the conditions of training entailed, were regarded as a bar to the service by girls who were otherwise suitable. The third reason, which has been indicated already, is that knowledge is on the whole less important in nursing than are temperament, health, and the kind of practical ability which either is inborn or comes with experience. Training and book-learning are useful supplements, but the public should not be encouraged to think that an aptitude for acquiring theoretical knowledge is an essential part of the nurse's equipment.

These reflections arise from perusal of the examination papers recently set by the General Nursing Council for England and Wales. In the Preliminary Examination held on Feb. 1st the candidates were probationers of one year's standing and in their first paper they were invited to answer three of the following questions, including one from each section:

A. Anatomy.—(1) Give a short anatomical description of the knee-joint. (2) What parts of the body receive their blood-supply through the innominate artery? (3) Describe briefly the cavity of the pharynx, and the various openings which communicate with it.

B. Physiology.—(1) Describe the various kinds of blood corpuscles. What do you know of their functions? (2) How does the body obtain its store of glycogen, and what are its uses? (3) What are the functions of the lymphatic vessels?

Most of these questions might be asked in examinations for the highest medical and surgical degrees, and it must be supposed that the Council's examiners are content to receive very simple and dogmatic answers. The candidates, however, have little assurance of this, and anxiety will not be diminished by turning to the "Answers by a Sister-Tutor," published in the *Nursing Times*. Dealing on Feb. 19th with the examination paper we have quoted, the sister-tutor answers the third of the anatomical questions and begins as follows:—

"The pharynx is a muscular tube suspended from the base of the skull and lying directly in front of the cervical vertebræ. Its upper portion, which lies behind the posterior nares, is called the naso-pharynx and the lower portion behind the mouth and tongue is the oro-pharynx. It is lined throughout with mucous membrane, which is continuous with that of the nares and mouth above and that of the larynx and œsophagus below. The muscles of the pharynx are largely arranged in circular and longitudinal fibres, which contract alternately, forming a wave-like movement during swallowing. At intervals throughout the pharynx are patches of lymphoid tissue, which are a great safeguard against the entry of disease germs, the chief being at the base of the naso-pharynx."

She continues in this strain for another 320 words, ending with the statement that "the cricoid cartilage below is the only complete ring of cartilage in the trachea and is narrow in front and broad behind." Her answer is a praiseworthy summary of the facts, but it does not suggest that candidates are intended to reply to the questions only so far as they bear on the practice of nursing, as might otherwise be presumed. Nor can this limited requirement be inferred from some of the papers set in the Final Examination for the General Register, which was held on Feb. 2nd. The first paper begins thus:—

Medicine.—(1) Give the symptoms and signs of rheumatic fever, pointing out the differences as found in children and adults. (2) What is meant by "pleurisy"? What are the different forms? Give the symptoms of each. (3) What are the chief causes of irregular enlargements of the breast? What advice would you give to a patient with such condition if she applied to you?

The candidates had to answer at least one of these questions, whilst among the alternatives in the second section was, "What dietetic and local measures might be recommended for an adult patient with severe eczema?" This question is far from being beyond criticism, but even more controversial are two others in which the nurse was asked to indicate the chief characteristics of the various kinds of ulceration of the cervix (stating what methods of treatment might be employed in each), and was expected to give some account of "the principles underlying the use of antitoxins and vaccines in infectious disease."

It may be that in practice the Council does not reject candidates for their ignorance on the questions we have quoted; it may be that its bark is worse than its bite. At the moment, however, the bark is likely to have unfortunate results. The recent examination papers deal with too many subjects of which knowledge is not essential to every nurse. The fact that the questions have alternatives will not prevent the conscientious student from trying to cover the whole ground surveyed, and the scope of the examinations makes it necessary for the schools of nursing to cram their pupils with facts which cannot be digested. Much of the theoretical teaching nowadays given does not arise naturally from work in the wards, but rather out of the demands of the examining body. Everyone will agree that an elementary knowledge of physiology and anatomy is all to the good, but a nurse must seldom find it necessary to remember morphological details; nor is it desirable that probationers should be taught to think in this peculiar way. And here, indeed, is the crux of the matter. There is no time to teach a nurse to think like a medical man, even if there were inclination; and if she is taught a great number of facts, without being instructed in the use of them, it is quite possible that she will end by getting a dangerously false impression of her powers. In diagnosis, with which some of the questions incidentally deal, there is nothing more risky than the half-knowledge which comes from reading elementary handbooks, and the nurse who relates her patient's every symptom to the medical adviser is a far safer assistant than she who fancies herself an amateur doctor. Frequent reference to a medical man is, of course, a counsel of perfection, for many nurses carry on their work in places where help is not available for weeks at a time. In such situations they have to use their discretion, which is often admirable; but these posts should only be entrusted to experienced women or those with special training. Admission to the State Register is surely not meant to imply that the newly qualified nurse is fitted to assume diagnostic responsibility. It ought merely to show that a candidate has the knowledge essential for efficient nursing—that she can keep a patient clean and comfortable, dress his wounds, prepare his food, administer the remedies prescribed, observe and report on his condition, and cope with emergencies which are likely to arise. These are no easy tasks, but they do not require knowledge of the innominate artery, the kinds of blood corpuscle, the metabolism of glycogen, or the functions of lymphatic vessels. Such information will doubtless increase a student's interest in the human body, and within limits it is valuable; but it is seldom, if ever, of immediate practical importance in nursing; it is an extra and should be regarded as such. To know about the varieties of ulceration of the cervix and the dietetic treatment of eczema is only necessary for those whose work is done under special conditions of isolation or responsibility. The present examination seems to demand knowledge which it is hard to gain without either long experience or a special training which cannot be given to every probationer. The result is a tendency towards widespread cramming. The immediate need, alike

from the point of view of the public, the medical profession, and the nurses themselves, is for a more copious supply of women who wish to take up nursing. Good material is almost certainly available, and it would be a pity if the enthusiasm of suitable people were inhibited by too ambitious a scheme of education. Excess of book-work means a heavy strain on the minds and spirits of probationers. Any loss of good recruits from this cause seems especially regrettable when it is realised that theoretical knowledge is at best an unsatisfactory criterion for the selection of nurses.

HEALTH IN INDUSTRY.

THE Industrial Health Education Society is an organisation for the spread among the British industrial population of fundamental lessons for the maintenance of health. It had its origin in a Scottish body entitled the Industrial Health Education Council, and its first annual meeting, held last week, therefore properly took place in Edinburgh. Sir WILLIAM HALDANE, who presided at the meeting, laid stress among other things upon the enormous pecuniary loss that is represented by the presence among workers of widespread preventable sickness, largely of occupational nature, and was following in the footsteps of many prominent speakers upon similar occasions when he declared that education would be the surest means of enabling the workers to defend themselves from the evils of ill-health as they prevailed in their particular occupations. There can be no two opinions on the matter. Parliamentary regulations and statutory by-laws have a good outcome; still larger effects accompany the dissemination of authoritative information from the Ministry of Health, such as now reaches the public through the newspapers; but direct appeal to the section of the populations especially concerned by means of lectures, demonstrations, and propaganda generally produces prompter results, particularly if the appeal can wear the shape of a message that everyone should help himself and his comrades in accordance with the counsel laid down. Organisations of the workers and individual workers are quick to grasp the real positions when they are placed clearly before them in this manner, and will assist in any public movement for the abatement of the demonstrable ills.

At the meeting of the Society referred to, Sir WILLIAM HALDANE, in moving the adoption of the annual report and financial statement, dwelt upon the unfortunate habit prevalent among all sections of society, industrial and other, of waiting before calling in the doctor until the peccant condition was so far established that remedy had become proportionately difficult and sometimes impossible. This, again, is a statement which has been made in public often before, and which cannot be too often repeated because it indicates the difficulties which lie before the medical profession in carrying out its ideals in the matter of prevention. The medical profession is constantly told that much of the mortality from malignant disease is due to the absence of early treatment, but, as Mr. STANLEY WYARD points out in a letter in another column, early application for treatment must take place before the medical man can make the early diagnosis, the need for which is perpetually revealed. Such early application will become much more frequent as the public learns, through a wise spread of the right knowledge, what are the things that matter, what are the just causes for apprehension, and what are the conditions commonly associated with the appearance and the spread of sickness. That the public is anxious for such information is well proved by its attitude during the recent pandemic of influenza, when the desire for trustworthy guidance on the personal aspects of prevention was clearly manifested, and manifested in hard circumstances, for neither the Ministry of Health nor anyone else was able to give authoritative replies to categorical questions, owing to the limitations of our knowledge. These limitations had an unfortunate sequel in that the inability on the part of responsible persons to prescribe a panacea gave an opening to the irresponsible, many of whom rushed into the breach and made pronouncements, advocating measures which were sometimes mutually contradictory and sometimes those which the Ministry of Health had put forward tentatively and which were now pressed upon the public with assurance and without discretion. But the position is a difficult one. In the face of an epidemic the people ask for a sign and are dissatisfied when they are told that no sign can be given, and that the only exorcism is a way of living which is often equally applicable to non-epidemic times. It is true that such occasions may be seized upon for driving home sound doctrines upon domestic hygiene, and for the expression of sensible reflections upon proper ventilation, the use of exercise, the rôle of clothing, and the need of dietetic precautions; experience, however, has shown that these lessons are soon forgotten when the emergency is passed, and also, alas, that those who observe the lessons are not by any means exempt from the epidemic. Here, of course, is where the dogmatic general advice fails particularly badly in the matter of dietaries, for not only is the gospel truth of one adviser at variance with the rational conclusion of another adviser, but patients conform only in a rough manner to a common pattern, and supply therefore a considerable percentage of persons who fail to react as their fellows may do.

There should be a valuable future for the Industrial Health Education Society; the dissemination of public messages on health topics is a matter which bristles with practical difficulties, and all intelligent attempts that are made to cope with these difficulties are therefore welcome. The purpose of preventive medicine is not only the reduction of disease or the postponement of the event of death, but the strengthening of the health and the raising of the standard of physical capacity of the normal person. The private practitioner has opportunities for keeping the normal individual on the track of health, while the public medical services are largely concerned with the already damaged. There is definitely a need for some form of systematic education of the public in matters pertaining to health. This is so far recognised that the organisation of propaganda has almost become a special branch of public health administration. Health departments have at their disposal, mostly through voluntary organisations, panels of paid lecturers, travelling exhibitions, lantern slides and synopses of lectures, films and posters, handbills and pamphlets. Mass attacks are frequently organised in the form, for instance, of Health Weeks. But far as we have gone in this direction, we are still a long way behind America where the "selling" of health, with the aid of innumerable artifices for catching the public eye and ear, has received a great deal of attention. Dr. Almus Pickerbaugh is a grotesque, but he illustrates a movement which is quite real in America. Are we right in our view that the British public are less receptive? And is our more

critically sceptical attitude a drawback to the public weal? There are some who think that direct instruction of the British public on the principles of healthy living ought to be given more systematically than at present, and among these are Dr. W. ALLEN DALEY and Miss HESTER VINEY, joint authors of a book on the subject recently published.[1] The authors, after describing the kind of education continually given through the routine practice of medical practitioners, private or public, and through nurses, present a moderate statement of the case for special teaching, and set out in a lengthy appendix model schemes, syllabuses of lectures, leaflets, programmes for lecture or health weeks, and lists of films which may be used as the skeleton of propaganda campaigns. We are glad to find their enthusiasm qualified by a warning against the risk of vulgar advertisement methods, while the recognition of the fact that the ideal place for health-teaching is in the curriculum of the ordinary school is welcome. In their view that health should not be taken as an isolated subject, but the whole curriculum of the school thoughtfully studied before the classes begin, and the health classes correlated with the rest of the subjects taught, we can trace the steadying influence of Sir GEORGE NEWMAN, but if the children are to be guided from day to day and hour to hour, as the occurrences of school life afford the opportunity, every teacher ought to have sound and up-to-date training. When this occurs no doubt health in industry will improve beyond belief; meantime the Industrial Health Education Society has a great task before it.

THE LISTER CENTENARY.

THE provisional programme for the Lister Centenary celebrations has now been agreed. The celebrations will commence on Monday, April 4th, with the reception of delegates by H.M. the King at Buckingham Palace, and on the evening of that day a reception will be held at the Royal Society of Medicine, when Sir STCLAIR THOMSON will give an address. On Tuesday, April 5th, at 11.30 A.M., there will a reception of delegates by the Prime Minister and a presentation of addresses at the House of the British Medical Association; applications for tickets to the ceremony may be sent to the secretaries of the Royal Society at Burlington House or to the British Medical Association. There will be short discourses by three delegates from abroad, dealing with the effect of LISTER'S work on surgical and pathological science and practice in their countries. In the afternoon of that day there will be a conversazione at the Royal College of Surgeons, England, and in the evening a dinner with the Merchant Taylors' Company at their hall. On Wednesday, April 6th, there will be a memorial service in Westminster Abbey at 11.15 A.M., when an address will be delivered by the Bishop of Birmingham, the Rt. Rev. E. W. BARNES, F.R.S. In the afternoon there will be a meeting at the Royal Society of Medicine at 3 P.M., when discourses will be delivered in the Robert Barnes Hall by Sir CHARLES SHERRINGTON, Prof. W. BULLOCH, and Sir BERKELEY MOYNIHAN. In the evening there will be a conversazione at the rooms of the Royal Society, Burlington House. Arrangements have been made that ladies should be present at all these ceremonies except at the dinner on the evening of April 5th. There will be an information bureau in the rooms of the Royal Society where tickets for the various receptions and ceremonies will be issued to the official delegates. The bureau will be open on Saturday, April 2nd, and Sunday, April 3rd, from 10 A.M. till 5 P.M. The bureau will also be open from 9 A.M. on Monday, April 4th, but it is hoped that as many delegates as possible will present themselves at the bureau with their credentials, not later than Sunday. All communications should be addressed to the secretaries of the Royal Society, Burlington House, London, W. 1.

A Lister Exhibition in the Wellcome Historical Medical Museum, 54A, Wigmore-street, will be open for inspection by the delegates, daily, 9.30 A.M. to 6 P.M., from Monday, April 4th, until further notice.

[1] Popular Education in Health. By W. Allen Daley, M.D., B.Sc., B.Sc., D.P.H., Medical Officer of Health and School Medical Officer, City and County of Kingston-upon-Hull; and Hester Viney, S.R.N. London: H. K. Lewis and Co., Ltd. 1927. Pp. 210. 6s.

Annotations.

"Ne quid nimis."

DENTAL CARIES IN BABIES.

To all workers in children's hospitals and infant welfare centres the spectacle of children of 2 or 3 years of age with extensive caries of the teeth is a familiar sight, but among dentists the ætiology of this early decay has not received much attention, probably because neither the private practitioner nor the school dentist sees many children so young. In a recent paper[1] Mr. A. T. Pitts describes some valuable investigations at the Hospital for Sick Children, Great Ormond-street. For the sake of completeness the carious teeth extracted from each child were examined microscopically so that their minute structure could be correlated with the clinical data. Many parents, he says, stated that the teeth came through the gums already decayed, and, though this cannot be correct as a statement of fact, it may, he suggests, have an element of truth in it and possibly signifies some congenital defect of structure which renders the teeth more liable to caries. Such a view has been strongly urged by Mrs. May Mellanby as the result of her experimental work. Children under 3 form about 7 per cent. of those attending the dental department of the Hospital. Though this does not represent the true incidence of caries at this age, since all the children are brought on account of various kinds of dental disease, yet it shows that in babies the condition is not negligible. Indeed, some figures obtained by Dr. Ethel Dukes from an infant welfare clinic showed a much higher percentage, for out of 84 children under 3 years old, 22 had carious teeth. The teeth usually affected are the upper incisors; the caries may start on the labial surface and extend toward the cutting edge or, more rarely, may start on the cutting edge itself and progress upwards to the gum margin. Sometimes this latter type of caries may cause a definite notch.

Mr. Pitts suggests that damage to the incisors may be mistaken for the stigma of congenital syphilis, known as Hutchinson's teeth, which would account for the statement that occasionally Hutchinson's notch occurs in the temporary teeth. The resemblance, however, is only superficial and Mr. Pitts has never seen a true syphilitic notch in the temporary dentition. In 29 per cent. of the children examined the mothers stated that the teeth were defective on eruption, and though in only a few cases were there any visible sign of defective structure in the other teeth, it is thought that the mothers' statements should not be entirely disregarded. The majority of the children were breast-fed, many of them for long periods, and there seemed to be no correlation of the caries with either breast or bottle feeding. It was often found that a dummy comforter had been used, frequently with some sugary or carbohydrate substance to help its soothing action. The substances most commonly employed for this purpose were virol, condensed milk, and honey. It is noteworthy that E. H. Harries[2] in 1911 drew attention to the rapid

[1] British Dental Journal, Feb. 15th, 1927.
[2] THE LANCET, 1911, ii., 1327.

destruction of the upper incisors in infants and attributed it to the use of a dummy dipped in some fermentable solution. In Mr. Pitt's series a dummy dipped in carbohydrate was used in 43 children out of 74. The teeth extracted were kept and microscopical sections were made from two or three of each batch. The enamel was usually so fragmentary that it was impossible to determine its structure, so attention was chiefly paid to the structure of the dentine. The teeth were divided into three groups: (1) those which were well formed; (2) those which showed slight imperfections, but not enough to warrant the assumption that the defects implied a pathological cause; and (3) those which showed marked defects of structure and could be fairly termed hypoplastic. The teeth of 40 children were examined microscopically, and in 20 of them the teeth fell into the first group, in 10 into the second, and in 10 into the third. In this last group the defects consisted of rows of interglobular spaces in the dentine, to an extent which suggested that the defective structure was due to some interference with the process of calcification, and that it must have lowered the resistance of the teeth to dental caries. It is rather remarkable that visible defects of the enamel only occurred in 5 out of the 70 children examined, and that there were only three cases of visible hypoplasia in the series of teeth examined by microscope. Only one of these, a case of fragilitas ossium, was placed in group 3.

Mr. Pitts summarises as follows: In 58 per cent. of the children there was a use of a dummy dipped in fermentable carbohydrate. Both the carbohydrate and the way it was used, chiefly at night, provided conditions favourable to rapid and early caries. In addition to this habit there was a history in some cases of the use of a biscuit or some similar starchy food being given at night. Thus in rather more than half the children the caries could be accounted for by a dietetic factor. But in a considerable percentage the dietetic history seemed insufficient to account for the caries, and the microscopic evidence, which showed defective structure in 25 per cent. of the children, suggests that this imperfect calcification may explain its onset. As to whether the imperfect structure was due to lack of vitamins as suggested by Mrs. Mellanby, no reliable data were obtainable, though the histories seldom revealed a definite lack of vitamins in the diet. The harmful effect of the dummy comforter has long been recognised by infant welfare workers and the investigations of Mr. Pitts should strengthen the prejudice against it.

THE NATURAL DURATION OF CANCER.

A PAPER [1] on untreated cancer of the breast, by E. M. Daland of Boston, provides interesting confirmation from America of the findings published by Major Greenwood [2] for this country. Daland deals with 100 and Greenwood with 651 patients. All these cases had, so far as could be ascertained, no treatment of any kind from the commencement of the disease till their death—that is, throughout the entire course of the disease. The duration is measured from the time when the patient first noticed the symptoms of disease—namely, the tumour, till death. Daland finds the mean duration of the disease to be 40·5 months and the median period—i.e., that at which 50 per cent. had died—to be 30 months. Greenwood's figures, which are based on three separate series, give a general mean duration of 38·3 months (39·8, 39·57 and 32·78 for the several series), and 27·5 and 24·0 months for the median period. Although the two sets of results are very similar, Daland's data show a somewhat longer duration of life; his series, however, is very much smaller and to that extent less reliable. The same feature is shown in the survivorship tables. Daland finds 40 per cent., 22 per cent., 16 per cent., and 5 per cent. alive at the end of 3, 5, 6, and 10 years respectively from the detection of the symptoms; all had died at 13 years. Greenwood's figures are 34 per cent., 16 per cent., and 12 per cent. at the end of 3, 5, and 6 years. In view of the difference in the size of the samples, this is probably as close a correspondence as could be expected, which suggests that the "malignancy" of cancer of the breast is roughly the same in Great Britain and in the East of America. Daland also gives some data of results after radical operation for cancer of the breast. Of 16 cases without glandular involvement, 62·5 per cent. were alive at the end of seven years after the detection of the tumour. It is not stated whether any had died of diseases other than cancer, but one had died of operation. These figures are not so favourable as those published last year [3] for the Leeds cases. Out of 39 patients without glandular involvement, 30, or 77 per cent., were still alive at the end of ten years after operation, and of the nine deaths six had been due to causes other than cancer. All series of cases are valuable which show the fate of patients at long periods after operation for mammary cancer. So far as they have been published they show how favourable are the results obtained with radical operation at a time when the growth is still confined to the breast.

[1] Surgery, Gynecology, and Obstetrics, February, 1927.
[2] Ministry of Health Reports on Public Health and Medical Subjects, 1926, No. 33.

DEVELOPMENT OF LOWER PART OF VAGINA.

MUCH argument has centred round the vexed question of the development of the lower part of the vagina, which has seemed to anatomists, and more indefinitely to clinicians and pathologists, to differ in certain particulars from the upper portion of the tube. It has been derived by individual workers from the Müllerian ducts, from the dilated ends of the Wolffian ducts, from combinations of both these structures, or from the urogenital sinus, either above or in combination with one of the varieties of ducts just mentioned. It has, moreover, been described as growing *in situ*, and as extending down secondarily and freely to assume its ultimate position and opening. At a meeting of the Anatomical Society held on Feb. 4th at St. Mary's Hospital Miss Alice Bloomfield and Prof. J. E. Frazer brought forward a first account of the results of their observations by serial sections on purely human material, showing that, up to the time when its presence is variable and it frequently disappears altogether, the Wolffian duct is distinct from the Müllerian duct, and shows no sign whatever of growth or bulbous formation. They showed the lower end of the vagina to be purely Müllerian in its development, in the course of which it extends along the wall of the urogenital sinus and invaginates this to a considerable extent, producing the evaginated hymen in the relatively shortened sinus. This simple account not only explains many of the features met with in the fœtal condition, but is in keeping with what might be expected on general morphological grounds.

AN AMERICAN EPILEPTIC COLONY.

THE Craig Colony in the State of New York is famous among institutions for the care of epileptics, and Dr. William Shanahan, the medical superintendent, always has some shrewd observations to make upon the care and treatment of his patients—observations which it would be useful to publish in the form of a book. A few facts taken from the thirty-third annual report will indicate how large is the experience which the colony offers and how ambitious is the work done. There is now an average population of 1586, with nine resident, three visiting, and nine consultant physicians. The net cost per patient is 324 dollars a year, or nearly 26*s.* per week, and in this report Dr. Shanahan asks for capital alterations and additions to the value of £300,000. Among more

[3] Ministry of Health Reports on Public Health and Medical Subjects, 1926, No. 34.

than 5000 cases which have been discharged or have died since the colony was started, there has been a recovery rate of 3·2 per cent., the standard of recovery being freedom from seizures for at least two years. The most interesting feature of the report is a bold attempt at an ætiological classification of the last 1500 patients admitted. Among every 100 such patients the disease is supposed to have originated in 12 cases from "inflammatory cerebropathics" (meningitis or encephalitis), often arising as complications of an acute specific fever; in 11 cases the assigned cause is heredity, in 10 cases developmental defect, in three cases trauma at birth, in five cases trauma since birth, in two cases cerebro-vascular sclerosis, and in two cases syphilis, hereditary or acquired. Of great interest are two other groups; 5 per cent. are reported as cases of essential epilepsy, due to "personality make-up," and 4 per cent. as endocrinopathic. Only 43 per cent. of cases remain as unclassified. The figures given are only a summary of results, and it is difficult to make any comment without some knowledge of the methods adopted in arriving at them. Nothing is said of multiple factors in any given case, but we assume that in each case an effort was made to select the major factor, and that it is upon these major factors that the classification is based. It is to be noted that the investigation is an endeavour to state cause and effect. The endocrine conditions and the developmental defects, for instance, are here cited not as concomitants but as causes of epilepsy. We hope that Dr. Shanahan and his collaborators will republish these figures in fuller detail and with some account of the methods adopted in classification. The numbers are large, and the records, doubtless, thorough and complete. Explained, considered and discussed, the figures should prove a valuable aid to all who are seeking to understand epilepsy. Among other information given in the report it may be noted that the incidence of tuberculosis is higher than might be expected, for during the last five years tuberculous infection was present in 86 patients who died. More surprising still is the fact that among the last 165 deaths only one was due to status epilepticus. Pathological investigations during the year have included researches into the rate of sedimentation of the red blood cells and into the calcium-content of the blood. In neither case did the figures for epileptics fall outside the normal limits.

THE INJECTION OF FOREIGN INERT PARTICLES INTO THE BLOOD.

IT is known that many blood-cells on contact with a non-greasy foreign material are, by capillary action, pulled progressively onward over the foreign surface, like a drop of water on a stone. To such cells, which include mammalian platelets and certain cells of the blood of astacus, Prof. J. Tait has given the name of thigmocytes. They are not distorted by contact with an oily or greasy surface, and are highly phagocytic towards minute particles of non-greasy matter. They have the power to ingest very minute particles of insoluble material without apparently suffering cytolysis, and are also a source of thrombin. The platelets or hyaline thrombocytes of mammals are peculiar in at least two respects, in their small size and in apparent absence of a nucleus. In the course of some experiments recorded in the *Journal of Physiology* (No. 2, December, 1926, vol. lxii.) Tait, working with A. R. Elvidge, injected some excessively fine particles of fused quartz, and particles of Indian ink and other inert substances such as barium sulphate and carmine, into the ear vein of rabbits. *A priori* considerations seemed to indicate that an injection of very fine particles might fail to cause coagulation of the circulating blood, whereas an injection of coarse particles might cause coagulation. It was found on intravascular injection that even coarse particles did not necessarily determine thrombosis. Addition of coarse particles to paraffin-held, drawn blood, by causing cytolysis of thrombocytes, eventually caused coagulation. Addition of an adequate quantity of fine particles to the drawn blood of the frog similarly caused coagulation, while addition of a smaller quantity of fine particles did not. Admixture of particles with the circulating blood, while failing to cause thrombosis, nevertheless effected a transformation of fibrinogen into fibrin. According to the observers the reason why thrombosis does not occur is that the particular conditions of formation of the fibrin allow of a successful response on the part of the "natural antithrombic mechanism" of the circulation. However the thrombosis may be brought about, it would seem likely that the rate of injection of the particles is the important factor. Rabbits will tolerate the intravenous injection of a thick suspension of fine particles of silica with no apparent ill-effects, provided the injection is given fairly slowly. A rapid injection, however, is prone to be followed immediately by convulsions and death. Tait and Elvidge report that as a result of intravascular injection of particles a fall in the number of circulating platelets occurs. After a heavy injection the fall is profound (though complete disappearance was never observed), and some days elapse before the previous number is restored. With injection of a smaller amount the fall of platelets is less and the time for recovery of the initial number is shorter. By repetitions of the injections at intervals less than the time necessary for recovery the number of circulatory platelets can be kept low. S. P. Bedson,[1] however, investigating the relationship of the reticulo-endothelial system to the number of circulating platelets, has shown that blockage of the splenic endothelial cells by carbon causes a considerable increase of platelets in the blood. He suggests that the spleen regulates the number of circulating platelets by phagocytosing the old and effete elements; these findings are diametrically opposed to those of Tait and Elvidge, and the matter is clearly in need of further investigation.

ANTONIO CARDARELLI.

WITH the passing away last month of this great clinician at the advanced age of 96 years, Neapolitan medicine has lost the most brilliant star it has possessed in the last half century. It seemed almost as if the wings of Death feared to touch this grand old man who, old as he was, suffered from none of the drawbacks of age, and preserved a wonderful freshness of interest; but at last the summons came and was heard with calmness and composure. Antonio Cardarelli was born on March 29th, 1831, at Civitanova del Sannio, his father being a much-respected provincial doctor. In 1890 he was called to the chair of medical pathology at Naples as successor to Arnaldo Cantani. He was at one time a member of the Chamber of Deputies and became famous for his crusades against the high price of salt, alcoholism, and university reform; in 1896 he was nominated senator. The various rivalries which existed among the professors at the hospital could not do otherwise than bring into prominence the brilliant gifts of clinician and teacher, which were so well harmonised in Cardarelli when he was still young. And around the young professor there gathered a large crowd of pupils who were devoted to him and whom he taught with untiring zeal. He was the discoverer and exponent of much well-recognised physical technique—for instance, laryngotracheal pulsation in aneurysm, percussion and auscultation of the sternum in affections of the mediastinum, transthoracic thrill in hydatid cysts of the liver, and a method of estimating cardiac efficiency. Much interest attaches to his description of a group of morbid signs which he united under the name of cardiac neurosis in which he indicated the true meaning of Basedowian tremor, and signs relating to the pathology of the vagus and a special form (vasomotor) of angina pectoris. It was also his conception that the condition of the

[1] Brit. Jour. Exp. Path., vol. vii., No. 5.

myocardium in heart disease was of greater importance than the nature of the valvular lesion, a conception that was further realised by the late Sir J. Mackenzie. Cardarelli cultivated science for its own sake, not for the satisfaction it can give to those who follow its teachings, but for the gladness it can give when applied to the betterment of human life. As Prof. Maragliano has said of him in a recent obituary notice in the *Riforma Medica*, "If the human body of Antonio Cardarelli is now lifeless and lovingly returned to the bosom of his native land, his spirit remains the eternal symbol of a teaching that should never be forgotten in the Italian Schools."

PSYCHICAL RESEARCH.

WE have received the first part of Vol. I. of the Proceedings of the National Laboratory of Psychical Research, established in South Kensington for the scientific investigation of alleged abnormal phenomena and forming the European headquarters of the American Society for Psychical Research. Starting with no preconceived theories the Council will endeavour to ascertain and demonstrate the laws underlying psychic or abnormal manifestations, and they emphasise the fact that every person connected with the laboratory is, by personal investigation, convinced of the reality of physical and mental phenomena, apparently abnormal, for which a normal explanation cannot be found. The present fasciculus is wholly occupied with an account of the telekinetic and other phenomena witnessed through Eleonore Zügun, a Roumanian girl 13 years old who, in her own view and in that of her friends at home, is possessed of a familiar spirit which plays all sorts of strange and useless tricks when she is about. The girl is described as healthy, very intelligent and happy, and appears to enjoy nothing better than playing with clockwork trains; while she is doing this in the passage, a halfpenny which has been put on the mantelpiece in a neighbouring unoccupied room may quite likely be moved to the far corner of the room. Dracu, as the devil is called, did not eat the biscuits which Eleonore thoughtfully left for him (or her or it) in the laboratory overnight, but he seems to have quite a habit of biting the girl and his teeth marks may suddenly appear at any time as white wheals. And so on. The whole forms a narrative which will confirm those who believe in their faith and will entirely fail to carry any conviction to unbelievers; it is an example of what has been done over and over again during the last 40 years or so and brings us no nearer a solution of the problems. For few serious-minded people will deny that psychical research has really produced problems of a fundamental character which we should all like to solve; but whether their spiritual significance can be elucidated by this material technique is very doubtful. Meanwhile it is evident that a subject who shows factitious urticaria as well as Eleonore does might well be passed on to Sir Thomas Lewis and his collaborators.

RATIONALE OF WASSERMANN REACTION.

ALTHOUGH brought to birth as the result of a satisfying system of ratiocination, the Wassermann reaction has in these latter days come to be recognised as a sort of diagnostic trick. Its usefulness is less than ever disputed, but why the serum of a syphilitic patient should give a positive reaction—which once seemed so easy to explain—has become shrouded in deeper and deeper mystery. Even the invention by American workers of a hypothetical substance, "reagin," has thrown no real light on the facts, nor has the substitution of the term "immune serum" for the hallowed name of "amboceptor." The problem has lately been attacked from a somewhat unusual angle by Ameer Khan,[1] working in the laboratories of the Brooklyn State Hospital. He sees the whole reaction in terms of hydrogen-ion concentration, and though a good deal more in the way of experimental proof is required to support the considerations which lead him to this view, his results, so far as they go, are nevertheless interesting. The Wassermann reaction, he believes, should be interpreted as a reversible chemical reaction dependent on the proportions of free H and OH ions present in the elements employed; a positive result he regards as due to a preponderance of H ions and a negative to a preponderance of the OH ions. As the only variables in a properly carried out series of Wassermann reactions are the sera under investigation, it would follow from this hypothesis that the change in the blood of syphilitic patients must be an alteration in distribution of the inorganic radicles, giving rise to a preponderance of acid ions. Such an alteration in a highly buffered substance like blood need not give rise to any actual change in pH, but it might lead to some change when the conditions of the buffering are altered, as in the Wassermann reaction, by mixing the blood with other test ingredients. No investigations on this point are recorded in Ameer Khan's paper.

[1] American Journal of Syphilis, vol x., No. 3.

TRANSFUSION.

THERE are probably few therapeutic procedures which have a basis more securely founded on sound physiological and pathological knowledge than transfusion. We welcome, therefore, the very thorough review of these fundamentals which is contributed by Dr. C. A. Doan from the Rockefeller Institute to the current number of that useful periodical *Physiological Reviews* (vol. vii., p. 1); his bibliography includes 717 items and he gives a critical summary of the whole. The outstanding clinical point is that nothing can replace the direct testing of the bloods of donor and recipient against each other if the operator is as anxious as possible to avoid anything like an accident. A number of workers in recent years have found anomalous bloods which do not fit into the established scheme of classification into four types, and these instances are now so numerous (though relatively, of course, quite rare) that it is certain that they cannot be put down to slipshod technique. It is also plain, as Prof. E. E. Glynn and Dr. A. R. Jones recently emphasised,[1] that the "universal donor" cannot be used indiscriminately; some of them have such a high titre of agglutinins in their serum that it may cause agglutination even when it is diluted in the blood stream of the recipient. The third agglutinating factor which was identified by Guthrie and Huck has been examined on a large scale at Sheffield by Dr. F. W. Simson[2]; it complicates the normal grouping in a minor way though it is of more theoretical than practical importance. Preliminary grouping by type sera should, therefore, always be checked by direct testing of the two parties to the transfusion against one another. Dr. Doan's survey brings out two other conclusions from the now considerable mass of experience: that though it may occasionally prolong life in, e.g., pernicious anæmia, transfusion finds its real use in the replacement of blood lost by hæmorrhage and that it is best and most conveniently done by the citrate method and any simple apparatus. Along broader lines the outstanding feature of recent work is the suggestion of Bernstein, Snyder, and others that the facts of the groups and their inheritance are best explained by an assumption of three heritable factors instead of the two originally proposed by Donath and Landsteiner. It certainly seems as if the anthropological data, which have so far given rather disappointing results, are more reasonably interpreted on the new scheme and may yet throw light on the origin and relationships of human races.

[1] Jour. Path. Bact., 1926, xxix., 203.
[2] Ibid., p. 279.

SMALL-POX IN MONMOUTHSHIRE AND YORKSHIRE.

ON the western side of Monmouthshire there are five industrial valleys draining downwards toward the town of Newport—namely from west to east, Rhymney, Sirhowy, Ebbw, and Western and Eastern Valleys. An extensive outbreak of small-pox in these densely populated valleys has come to light during the past week. The two most eastern of these valleys are mainly involved in the outbreak, but on Feb. 28th a case was reported from Blackwood at the lower end of Sirhowy Valley. In spite of the high mountains which separate them from each other these valleys are not far apart. The inhabitants, numbering approximately 370,000, are mainly occupied in various branches of the mining industry and there is a great deal of intercommunication. The opportunities for spread, therefore, in a population very largely unvaccinated are considerable. A case of small-pox was discovered in Cardiff Royal Infirmary on Feb. 18th and removed to the Cardiff Small-pox Hospital. The patient had been admitted to the infirmary from Abertillery in Monmouthshire, and the date of sickening definitely excluded a Cardiff infection. On the following day another case of small-pox without any association with the first case was reported in Abertillery, and as the result of inquiries instituted by the county and urban district medical officers and a medical officer from the Welsh Board of Health, it was ascertained that a large number of similar cases were occurring in the area surrounding Abertillery. Altogether up to Monday, Feb. 28th, 40 cases had been discovered and dealt with. The towns and villages affected are Garndiffaith, Blaenavon, Abertillery, Talywain, Varteg, Abserychan, Pontnewynydd, Penhow, Pontypool, Newport. The two cases reported in Newport are merely suspects.

Monmouthshire County Council, who are the responsible authority for the isolation of small-pox, have no adequate isolation accommodation for this disease, and it has been necessary to utilise beds which Newport and Cardiff Corporations have put at their disposal. We understand that further arrangements for increasing accommodation are being made, but it is obvious that an extensive outbreak of this nature will involve the rapid provision of a large number of beds. In the meantime active measures for preventing the spread of infection are being taken, and a vigorous campaign is being carried out with the object of getting the population of the affected valleys vaccinated. It is understood that the response to the appeals of the Health Department is good. In Yorkshire the disease seems to be of a more virulent type. The infection has spread to Leeds, while at South Shields nearly 30 new cases were notified, including two nurses. Here, also, the population is submitting to vaccination on a large scale.

THE Cambridge University Press announces the preparation of a new series, "The Cambridge Comparative Physiology," edited by Prof. Joseph Barcroft, F.R.S., and Mr. J. T. Saunders, University Demonstrator of Animal Morphology. The first three volumes, which will be ready this spring, will be "The Comparative Physiology of the Heart," by Prof. A. J. Clark; "The Genetics of Sexuality in Animals," by Dr. F. A. E. Crew; and "The Comparative Physiology of Internal Secretion," by Mr. L. T. Hogben.

EPSOM COLLEGE.—The Council are about to award a St. Anne's Home Scholarship of £52 a year to the orphan daughter of a medical man who has been in independent practice in England or Wales for not less than five years. Candidates must be fully 7 years of age and not over 12 years of age on May 1st next. The Council are also about to award a Henry Duncalfe Annuity of £30 a year to the unmarried daughter of a medical man. Candidates must not be under 50 years of age. Forms of application can be obtained from the Secretary at the Office of the College, 49, Bedford-square, W.C. 1, and must be returned not later than the morning of March 16th.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCXIII.—THE TREATMENT OF URÆMIA.

URÆMIA is an unsatisfactory term, including as it does symptoms diverse alike in mode of onset, ætiology, and pathology, and having but one thing in common—namely, their occurrence during the course of renal disease and in conditions associated with anuria. Uræmia may be regarded as the expression of a temporary or permanent failure of the kidney in one or other of its functions. The clinical manifestations are divisible into two well-recognised groups—a convulsive type occurring mainly in acute nephritis and tending to recovery, and a chronic type occurring as the terminal phase in chronic nephritis and indicating a kidney defeated beyond all power of repair. Mixed forms are occasionally met with, but generally speaking the two groups are quite distinct. A third type has been separated off by Volhard, and called by him pseudo-uræmia which, while resembling chronic uræmia in certain of its manifestations, is unattended by any evidence of renal failure, and is probably due to the effects of prolonged vascular hypertension. The treatment of this group is outside the scope of this article.

Acute Convulsive Uræmia.

This form occurs as a complication of acute glomerulo-tubular nephritis and occasionally in those chronic parenchymatous forms associated with œdema, now more accurately designated chronic nephrosis.

It may be regarded as due to over-action of the compensatory mechanism following failure of the kidney to excrete water and salts. Since evidences of urea retention in anything but a moderate degree are wanting, the condition is not strictly uræmic and would perhaps better be classified as the cerebral symptoms of acute nephritis. The underlying cause is in all probability compression of the brain against the rigid cranial wall by cerebral œdema, a theory which, originating with L. Traube and lying discarded for many years, has now been revived. Invariably associated with it is a rise in blood pressure, whose relationship to cerebral compression has been shown in the experimental work of H. Cushing and the clinical observations of K. Blackfan and B. Hamilton. Whilst the epileptiform attack is the classical expression of this type of uræmia certain rudimentary forms or, as Volhard calls them, eclamptic equivalents, may be substituted. Such are headache, vomiting, localised paralyses or hemiplegia, sudden blindness, hemianopia, and various mental disturbances such as hallucination, delirium, and acute mania. A prodromal stage, during which the blood pressure is rising, can be recognised, and is a valuable indication for treatment.

Venesection.—Acute convulsive uræmia is a medical emergency and demands prompt and adequate measures. Frequent readings of the blood pressure during the course of acute nephritis will usually give warning of impending catastrophe, which may be averted by a timely venesection. The removal of from 10 to 20 ounces of blood is a measure of proved utility, and should be resorted to without delay, either as a preventive measure or when convulsions have occurred.

Intravenous Magnesium Sulphate.—Recently Blackfan and Hamilton [1] have recorded a method which, they claim, is superior to any other in the treatment of this condition in children.

These authors confirm the occurrence of cerebral œdema and the rise of blood pressure, and find that the intravenous injection of a 1 per cent. solution of magnesium sulphate, together with the administration of large doses of the salt by mouth and by rectum, results in a prompt fall of blood pressure and a subsidence of cerebral symptoms. The injection is given very slowly, not more than 10 c.cm. per

[1] Blackfan, K., and Hamilton B.: Boston Med. Jour, 1925, excii., 617.

minute, and in amounts equal to about 20 c.cm. per kg. of body-weight. It is repeated if the blood pressure shows a tendency to rise again. For further details the reader should consult this valuable paper, the results of which appear to have received general confirmation.

Lumbar puncture is another procedure which has been advocated, but according to the authors just quoted it is not without its risks, owing to the danger of a medullary pressure cone phase, well exemplified in their record of a fatal case. It should therefore not be undertaken without due precaution and full realisation of its risks.

Sedative drugs are valuable only in so far as they supplement and maintain the results obtained by the above methods. The best of these are chloral hydrate, in doses of from 5 to 15 gr. given every four hours by mouth or 30 gr. by rectum, and the judicious use of morphine. Headache and vomiting are the result of increased intracranial tension and usually respond rapidly to the methods already described.

The treatment of œdema and the general management of these cases are part of the treatment of the causal nephritis.

To sum up, the aim in the treatment should be the prevention of uræmic convulsions by recognising the significance of a rise in blood pressure and taking prompt measures for its reduction.

True Chronic Uræmia.

This form is the final phase in chronic diffuse glomerulo-tubular nephritis, and is its most frequent mode of termination.

Whilst a discussion of the numerous theories which have been advanced to explain the uræmic manifestations is beyond the scope of this article, it is interesting to note that the view put forward by Wilson in 1833 that urea was the responsible toxic substance, and regarded until quite recently as of little more than historical value, seems to be coming once more to the fore. To quote Wells,[2] "It would seem, despite the prevailing opinions to the contrary, that it is entirely possible that the manifestations of uræmia may be caused by the known nitrogenous substances that the kidneys have to excrete, and that the only difficult thing to explain is the failure of investigators to consider the time element in experimental intoxication." In other words, it is necessary to record observations on the effects of retained substances when maintained in the organism at the concentration met with in uræmics. Definite progress has already been made along these lines. Hewlett, Gilbert, and Wickett [3] found that if large doses (100-125 g.) of urea were given to healthy men in single or divided doses, symptoms occurred when the blood concentration had reached a level of 160 to 245 mg. of urea per 100 c.cm. of blood. These symptoms were headache, giddiness, apathy, drowsiness, bodily weakness, nausea, and diarrhœa; in brief, the symptoms of chronic uræmia. Leiter,[4] by the slow intravenous injection of urea into dogs, produced similar symptoms, death finally occurring from convulsions, when the amount injected reached an equivalent of at least 1 per cent. of the animal's weight in grammes.

It seems clear, therefore, that we must revise our ideas and accord to urea a much more important rôle than that of a harmless, inert, waste product. Doubtless, other factors are of importance in certain cases, as for instance in those in which the blood-urea values lie within normal limits, but such are exceptional, and it is possible that some of them are examples of pseudo-uræmia and owe their symptoms to the effects of prolonged vascular hypertension rather than to renal failure.

The clinical symptoms of uræmia appear insidiously, and tend to assert themselves when figures of 150 mg. or more of urea per 100 c.cm. of blood have been reached. When once established the course is progressive, though temporary remissions may occasionally delay the fatal termination. Treatment is profoundly unsatisfactory, but while we know of nothing to stem the inevitable march of events, by the judicious treatment of outstanding symptoms the patient's sufferings can often be ameliorated and the end made easier.

[2] Wells, G.: Chemical Pathology, 1925, 5th edit.
[3] Hewlett and others: Archiv. Int. Med. 1916, xviii., 636.
[4] Leiter: Archiv. Int. Med. 1921, xxviii., 331.

Gastro-intestinal Symptoms.—In the majority of cases these are amongst the earliest and most troublesome symptoms to declare themselves, and represent the so-called gastro-intestinal type of uræmia. The mouth should be kept clean by the frequent use of alkaline washes, and all debris from the teeth and gums should be removed after meals to minimise, as far as possible, the risks of uræmic stomatitis. Nausea and vomiting are prominent symptoms, and contribute largely to the patient's discomfort. Gastric sedatives, such as cerium oxalate, gr. v., in combination with dilute hydrocyanic acid and bismuth, ℥x. liquor adrenalin hydrochloride in water, and minim doses of tincture of iodine repeated at frequent intervals, are all useful, whilst in especially intractable cases the following may give temporary relief.

℞ Chloretone, gr. v.
Cocaine hydrochloride, gr. 1/5.
Not more than three doses to be given in 24 hours.

Constipation, often a very troublesome symptom, is best dealt with by frequent and large doses of saline aperients in order to encourage elimination of urea by this channel. At times, however, a very troublesome and fatal diarrhœa, with all the manifestations of ulcerative colitis, will necessitate the use of suitable astringents and possibly opium.

Persistent hiccough, though rare, is of grave import and proves very resistant to treatment. Stimulating applications to the epigastrium, such as fomentations or mustard leaves, should be tried, and of drugs, nitro-glycerine gr. 1/100, liquid extract of ergot in drachm doses, and carminatives, such as oil of turpentine ℥x. in capsules, have their advocates. The symptom is usually a terminal one, and there is no reason in obstinate cases to withhold morphine.

The diet is not a matter of primary importance at this stage, the time having passed when any benefit could be expected from the rigid limitation of proteins. Water should be given freely, and the patient's likes and dislikes consulted.

Respiratory Symptoms.—Paroxysmal dyspnœa, the so-called uræmic asthma, is often a prominent symptom, and on the grounds that this is a manifestation of acidosis sodium bicarbonate, in drachm doses, every three or four hours, may be tried. Inhalations of oxygen are useful, but probably the most certain method of relief is the injection of morphine.

Cutaneous Symptoms.—Itching of the skin, at times of intolerable severity, and occasionally associated with various skin eruptions, is best treated by the frequent use of warm alkaline baths and sedative drugs, such as the bromides, in full doses. Elimination of toxins through the skin by the various methods of diaphoresis is not to be recommended. It adds to the patient's weakness and does no good.

Nervous Symptoms.—These consist of a mixture of depression and irritation. Mental depression is often extreme and there may be increasing lethargy passing into coma. Irritative phenomena are seen in the twitching of muscles and cramps, in restlessness, mild delirium, or even mania. Chloral hydrate, gr. v.–xv., in combination with gr. xv. of a bromide salt, is useful, but our sheet anchor is morphine which, as Osler insisted, can be given under careful supervision without undue risk.

Persistent headache, if unrelieved by aspirin, phenacetin or the like, and especially if associated with a rise of blood pressure, should be treated by venesection or by the injection of a 1 per cent. magnesium sulphate solution. Convulsions which, though not an essential part of the clinical picture of chronic uræmia, may occur in the terminal stage should be treated on similar lines.

To sum up, treatment of chronic uræmia is symptomatic only, and our end is gained if the sufferings of this lingering malady are in some measure eased. For this purpose morphine is an indispensable ally.

T. L. HARDY, M.D. Camb., M.R.C.P. Lond.,
Assistant Physician, General Hospital, Birmingham.

Special Articles.

MEDICAL RESEARCH COUNCIL.

ANNUAL REPORT FOR 1925–26.

(*Concluded from p. 455.*)

LAST week we drew attention to the survey of certain branches of research which formed the substance of the introduction to this year's annual report of the Medical Research Council. A summary of the work of each department of the National Institute for Medical Research is then set out, while a separate section is allotted to the determination of biological standards and the methods of biological assay. The research work of clinical units is described under the heading of the institution where it is being carried on and then research schemes in specific subjects are considered, systematic cross references being given to work mentioned in another place. This list of investigations is worth notice, for it shows how wide is the scope of the research subsidised. It includes problems of child life; human nutrition; dental disease; disorders of the cardiovascular system; disorders of the respiratory system; disorders of the excretory system; disorders of the nervous system; mental disorders; the physiology and pathology of the blood; the glands of internal secretion; diabetes and insulin; tuberculosis; studies of the streptococcus and pneumococcus group; venereal diseases; filtrable viruses; canine distemper; studies of cell and tissue growth; malignant disease; radiology and radiotherapy; the biological actions of light; chemotherapy; general biochemical researches; general physiology and bacteriological researches; vision; experimental epidemiology; metazoan parasitology. The term "research scheme" does not here imply that the researches described under each heading are necessarily part of a definite plan; often it is obvious that they are in no way connected, but for convenience are grouped under a common heading. On the other hand, the Council calls attention to the existence and activity of some 30 scientific committees who contrive without interfering with the freedom of each investigator to frame and supervise some schemes which involve the correlation of results of workers on different aspects of allied problems. These committees are composed of experts who give their services, and the Council attribute to this voluntary systematic help the effective and economic distribution of the funds at their disposal. Some examples typical of the work in progress are summarised below.

Biological Actions of Light.

This work continues to be directed by the following committee: Prof. F. A. Lindemann (Chairman), Mr. J. E. Barnard, Dr. H. H. Dale, Captain S. R. Douglas, Prof. Georges Dreyer, Sir Henry J. Gauvain, Dr. Leonard Hill, Dr. J. H. Sequeira, Dr. E. Schuster (Sec.). The Committee, at the request of the Ministry of Health, have suggested the lines on which reports should be made by the phototherapy department of various institutions receiving grants from the Ministry.

Mr. J. H. Jeffree, working under Prof. Lindemann and Dr. G. Dobson at Oxford with a grant from the Council, is attempting to provide simple and accurate means of measuring the energy of ultra-violet rays of different wave-lengths, whether in sunlight or from artificial sources.

Dr. Dora Colebrook has been appointed by the Council as a whole-time worker under the direction of the Committee, for the organisation of investigations and the standardisation and recording of clinical data. To this end an effort is being made by coöperation with clinicians in charge of Light Departments to select for investigation such pathological conditions as show definite and measurable results of the therapeutic action of light, and allow comparison with similar untreated cases for control. In a ward reserved for light treatment at the New End Hospital, Dr. Colebrook is making a special study of the action of light on chronic ulcers.

Dr. W. S. Duke-Elder has been investigating the actions of radiations of different wave-lengths upon the various parts of the eye. Special attention is being given to the possible action of natural radiant energy in the causation of cataract. Under the general direction of Sir John Parsons, Dr. Duke-Elder is conducting an ultra-violet light clinic at the Royal London Ophthalmic Hospital. The purpose of the clinic, the first of its kind in the country, is to investigate how far diseases of the eye are amenable to treatment by general irradiation with ultra-violet light, and how far the light can be used in the local treatment of diseases of the front chamber of the eye.

Dr. R. G. Bannerman has studied cases of tuberculosis under light treatment at Alton, and done related experimental work.

At the National Institute for Medical Research Dr. Leonard Hill and his colleagues have continued their studies of the actions of light radiations on the animal body, whether direct or indirect, and have sought to bring these into relation with the practical use of light therapy in clinical work. With the aid of glass screens, the transparency of which had been determined by Dr. R. B. Bourdillon, Dr. Hill has investigated the wave-lengths of the sun rays which produce skin flush (erythema), and has found that ultra-violet rays of longer wave-length than hitherto supposed are the most active in sunlight. He has also, with Dr. Y. Azuma, investigated the action of ultra-violet rays on skeletal muscle.

Mr. T. C. Angus has found, when comparing the effects of arcs between electrodes of different compositions, that the killing time for infusoria, the photo-electric cell, and erythema of the skin may indicate very different values of ultra-violet radiation. The former two indicators are affected by shorter wave-lengths of ultra-violet light, which do not penetrate the horny layer of the skin and so do not produce erythema. This shows the need for some selective screen to be used with these indicators. Such a screen is now being sought, the aim being to find a simple indicator of the erythema-producing dose.

The Eder photometer has been found inferior to the acetone-blue gauge as a simple means for measuring ultra-violet light. The acetone-blue gauge shows that, on the average, two-thirds of the ultra-violet rays are cut off by smoke and dust pollution of the atmosphere in the City of London.

Many of the present uncertainties of knowledge, theoretical and practical, spring from the customary use of complex mixtures of radiations of unknown intensity and widely different wave-length. Dr. Bourdillon has studied the design and preparation of filters for isolating narrow bands of wave-length of ultra-violet rays so as to gain practical methods of using light of any wave-length desired, in bands of few hundred Angstrom units in width, either for research work or for curative treatment. Mr. Webster's work on the activation of cholesterol by light was referred to in THE LANCET of last week.

Dr. A. Eidinow has made trial of various methods of controlling the dosage of light in clinical work.

Statistics.

Dr. John Brownlee has been engaged during the year, with the help of Mr. H. E. Soper, in making a review of the statistics which are used in medical and biological researches, with a view to publishing a convenient working synopsis of the best methods available for use in inquiries in those fields. The work will shortly be published.

Dr. Brownlee has also been investigating the relation of weather to disease by new statistical methods which have been suggested in recent years. These have revealed some periodicities in climatic temperature not hitherto suspected. During the year Dr. M. Young has made for the Dental Committee of the Council a statistical analysis of data collected by Miss F. H. Bachrach, relative to the dental condition in groups of identical and fraternal twins, and has reported on the different degrees of resemblance in dental characters in the two types of twin. The object was to ascertain the influence of the hereditary factor. Dr. Young has found that a closer relationship exists between identical

than between ordinary twins in respect of tooth eruption, of occlusion, and of the occurrence of gingivitis; but the relationship is no closer in one group than in the other in respect of caries in permanent teeth and of hypoplasia. He has assisted Mrs. Forest Smith in the statistical treatment of the data for a report on Rheumatism shortly to be published by the Council.

Dr. Young has investigated the incidence of cancer in the different districts and has assisted Dr. Clara Stewart in a statistical analysis of the post-operative histories of hospital patients at Leeds which appeared in THE LANCET, 1926, ii., 1258, while Mr. W. T. Russell's study of the influence of fog and temperature on the respiratory death-rate among adults is also familiar to our readers.[1]

The Statistical Committee of the Council over which Dr. Major Greenwood presides have taken a large share in three industrial researches, concerned respectively with the mining, the weaving, and the printing industries, to which detailed reference is made in the Report of the Industrial Fatigue Research Board.

The Dick Test for Scarlet Fever Immunity.

At the City Bacteriological Laboratory in Birmingham Dr. H. Henry and Dr. F. C. Lewis have continued their researches into scarlet fever immunity.

By using susceptible human volunteers they have been able to titrate a measured amount of scarlet fever toxin against varying amounts of serum taken from children who have not had scarlet fever and also from those who are convalescent from the disease, and, by this method, have succeeded in showing that an attack of scarlet fever usually results in an immunity of which the degree can be measured in terms of antitoxin units.

It has also been discovered that a small percentage of young children have notable quantities of antitoxin in their blood, without any other evidence of any previous attack of the disease. The deduction is that these children must have passed through an attack of the disease in a form not recognised clinically. Since most adults are resistant to the Dick test and also show relatively large amounts of the same antitoxin in their circulating blood without any history of an attack of the disease, a strong suggestion arises that scarlet fever as the clinicians see it may exhibit only a small percentage of a widespread infection which at present escapes detection.

Dr. Henry and Dr. Lewis have also made a series of experiments to determine the rise and fall of antitoxin production in convalescence from scarlet fever. At present their work is being directed to a satisfactory standardisation of the Dick test and to an accurate definition of the antitoxin unit. In dealing with both these important problems they are acting in collaboration with members of the Council's staff at the National Institute.

Diseases of the Excretory System.

A record of the kidney efficiency tests, by which the progress of a large number of cases of chronic nephritis has been followed since the war, has been maintained during work done for the Ministry of Pensions. This has now been completed, and the results are being correlated. The investigation shows many interesting and sometimes quite unexpected results; it will give a real basis for knowledge and should prove a useful record of the possibilities of prognosis of the clinical progress in nephritis of a kind hitherto not available.

At Guy's Hospital, London, Dr. A. A. Osman has received a part-time grant for studies of nephritis which have given results of great promise. His previous work had shown that in all kinds of kidney inflammation there is a fall in the bicarbonates of the blood. Proceeding on the lines of a hypothesis based on this, he has worked out and tested a new line of treatment of nephritis by the administration of alkaline salts under particular conditions. The results of this treatment, in its present form suitable only for hospital practice, certainly justify further trial and study. The method offers at the same time a hopeful line of treatment for the prevention of nephritis following scarlet fever. Dr. Osman has found evidence for the existence of individuals having a special liability to nephritis after scarlet fever. It will be an obvious gain if these can be recognised and given effective preventive treatment.

[1] THE LANCET, 1926, ii., p. 1128.

Prof. J. Shaw Dunn, working with Dr. C. J. Polson, has made observations on nephritis due to uranium, for comparison with results obtained earlier in oxalate nephritis, which are in course of publication. Dr. S. L. Baker, has again received a part-time grant for work on experimental nephritis, and Dr. Mona Kirkhouse has assisted Dr. W. E. Hume at the Victoria Hospital, Newcastle-on-Tyne, in an investigation into the action of diuretic drugs. Dr. C. Reid of the University of Aberdeen has studied the effect on renal efficiency of lowering the blood pressure in cases of high blood pressure.

Vaccinia and Small-pox.

Working in the whole-time service of the Council at St. Bartholomew's Hospital, London, Dr. M. H. Gordon is continuing his studies of the virus of vaccinia. After an examination of the characters of the allied virus of roup, a disease of poultry, the study of vaccinia virus was resumed and an investigation made into the power of the serum of animals immunised against vaccinia, both to destroy that virus in vitro and to protect a normal animal against vaccinia.

In January, 1926, Dr. Gordon served at The Hague upon an international committee appointed by the Health Department of the League of Nations to discuss some problems of vaccination and small-pox. A scheme of experimental work was adopted to promote the standardisation of calf-lymph, and the investigation of some of the rarer abnormal results following vaccination.

Captain S. R. Douglas, assisted by Dr. L. R. W. Price, has been engaged in studies of vaccinia, using a strain of neurovaccine obtained by the courtesy of Mr. Levaditi from the Pasteur Institute, Paris. The experimental work associated with the cultivation of this virus outside the body is still incomplete. Many subsidiary points of much interest have already been determined, which bear upon the generalisation of vaccinia in the body and the comparisons to be drawn between the blood-changes and the localised cellular changes in vaccinia and in small-pox respectively.

Dr. J. R. Perdrau has studied the possible interactions of the viruses of herpes and of vaccinia upon each other in the same animal, with a view to throwing light on the possibility of post-vaccinal encephalitis, a subject now under special study by the Vaccination Committee, appointed jointly by the Ministry of Health and by the Council.

Dr. F. W. Twort, working at the Brown Institution, London, is also attempting to find methods for the artificial cultivation of ultramicroscopic viruses outside the body.

"Status Lymphaticus."

During the past year the Committee in charge of this investigation have done the preliminary work necessary to put the scheme on a satisfactory statistical basis.

In the past many of the workers engaged in the inquiry have not had the time or facilities for the critical observations necessary to give their data proper statistical value. The Committee have now appointed a number of part-time workers, mostly junior members of the pathological staffs of universities and large hospitals, who collect suitable data according to a schedule laid down by the Committee, and they receive small grants from the Council. It is hoped thus to gain uniform and adequate details of the cases under investigation. The Committee have also invited the coöperation of other pathologists by means of notices in the medical journals and they have provided an abbreviated form of record card for use. The chief objects in view are the collection of a large series of weights and measurements of the thymus in cases of sudden death in apparently normal persons, so as to establish the normal weight of the organ and its proportion to body-weight at all ages; the investigation of the associated clinical and pathological states of persons over 15 years who have "persistent" thymus glands; and the critical investigation of those cases of sudden and unexplained death where at autopsy the only apparent abnormality is a large thymus.

Dr. D. S. Murray has been receiving a part-time grant for work on the thymus gland at the Royal Hospital for Sick Children, Glasgow, and the results are now available. In this he has had assistance from the clinical staff, especially Dr. Leonard Findlay and Mr. Alexander MacLennan, and from Dr. J. W. S. Blacklock, pathologist to the hospital, under whose supervision the work has been done.

MEDICINE AND THE LAW.

Professional Expulsions.

THE disqualifications associated with osteopathy are naturally mentioned in an article in the *Solicitors' Journal* of Feb. 12th dealing with the problems of expulsion from a profession or trade-union. The article begins with the professions of barristers and solicitors and passes on to summarise the cases decided in the nineteenth century in connexion with the Medical Act. It then comments upon *re* Bynoe, a decision of the year 1900 wherein the court held it had no power to direct the rehearing of the case of a practitioner originally disqualified for felony, though admittedly the evidence on which the criminal conviction was based was afterwards found to be unsatisfactory. The article suggests that the legislature might usefully reverse the decision in *re* Bynoe and give the court power to direct a rehearing on facts sufficiently strong to warrant it as a matter of justice. "It cannot be doubted," the writer continues, "that, had the court possessed this power and been invoked, it would have required the Medical Council to reconsider the case of Dr. Axham, and, in view of the latter's last illness, without undue delay." Not everyone, however, will agree that this matter is so free from doubt. What were the fresh facts discovered in Dr. Axham's case? His illness, however much we may regret it, was certainly not a fresh fact upon which the disciplinary decision of the General Medical Council could reasonably be reopened in a court of law. The *Solicitors' Journal* considers that the Axham case shows the necessity for revising the constitution of the General Medical Council and permitting an appeal to open court from its decisions as in the case of the solicitors' profession. The Council, it is said, is too unwieldy a body; the members nominated by outside corporations might be eliminated; the Council should consist of representatives of the profession and persons nominated by the Crown, who should not all be doctors but might include retired judges if the latter were willing to serve. Concerning these suggestions, which some will approve, a good deal might be said. For the moment there is another passage in the article which is worth quoting. The writer mentions Sir H. Barker as an unregistered practitioner, a quack from the point of view of the Council, and yet "found by the public to be a brilliant healer in his own line," later honoured by the King with a knighthood. "It is hardly too much to say," he adds, "that in his particular branch of osteology he has been the leader, and Dr. Axham's infamy was to discover his powers before the profession and even before the general public had done so." Against this statement it seems reasonable to enter a little protest. If Acts of Parliament are devised to restrain the activities of the unqualified, it is not really possible to relax the restrictions in the case of an individual because of his peculiar, though untested, abilities.

It is probable that much popular prejudice is aroused by the words "infamous conduct." They are not confined to the Medical Act. They reappear in the Apothecaries Act of 1874, and, with the addition of the alternative word "disgraceful," in the Dentists Act of 1878. Disgraceful conduct is made a ground for removal from the Register in the Veterinary Surgeons Act of 1881. The expression "infamous" has a rather archaic sound; if it were eliminated some other expression must be substituted to convey the idea of conduct which is professionally dishonourable and reprehensible in a marked degree. No one, surely, quarrels with the principle that a profession should have power to define its own traditions and standards and to enforce them. The tendency of to-day is to extend this principle rather than to restrict it. Architects and members of other professions are seeking statutory powers of this nature. In the last few days there has been presented to Parliament an Engineers Bill "to provide for the registration and to regulate the qualifications of engineers." The Bill proposes to give power to remove an engineer from the Register "owing to conviction of any heinous offence or to unprofessional conduct of a serious nature." Infamous, disgraceful or merely serious, every profession knows the kind of conduct it reprehends and the necessity of some system of discipline.

Osteopath's Unsuccessful Claim for Fees.

Nobody can recover fees in a court of law "for any medical or surgical advice, attendance, or for the performance of any operation" unless he is a registered medical practitioner. Does this principle, which is to be found in Section 32 of the Medical Act of 1858, apply to osteopaths? Does an osteopath give surgical advice and perform operations? The answer to these two questions is apparently in the affirmative. The deputy county court judge in the Bloomsbury Court decided on this ground against an osteopath's claim in a case reported in the *Times* of Feb. 25th. The plaintiff had been called in to give osteopathic treatment to the defendant's wife. He stated that he found her suffering from nervous debility and facial neuralgia. He found that one of her legs was longer than the other, which fact, he considered, contributed to the debility. His charges were 3 guineas for each consultation, and 2 guineas for each subsequent visit. His total claim in the county court was £30 9*s*. He stated that he obtained his degree in America, that no degrees were conferred in respect of osteopathy in this country, and that he made no claim to be legally recognised. The defendant pleaded that the treatment was unnecessary and unsuitable and that the plaintiff was not qualified. The deputy judge referred to the section of the Medical Act already quoted and doubted whether the plaintiff was not debarred thereby from recovering fees, the fees being charges for medical or surgical treatment. The plaintiff replied that he believed it had been held that osteopaths could recover; they did not claim to give medical or surgical treatment. The judge said it was not a question of what osteopaths claimed to do, but of what they in fact did. He gave judgment against the plaintiff, though willing to give leave to appeal if desired. Of course, as the judge observed, if an osteopath obtains payment of his fees in advance, the Medical Act does not to this extent apply.

Electrical Treatment by Automatic Machine.

Two automatic machines were installed in the shop of a Birmingham confectioner and hairdresser. They were called "Pickwick Automatic Electric Amusement Machines." In the centre of one of them (produced for inspection in the Court of Criminal Appeal) was this inscription:—

"Place ½*d.* in slot and grasp knobs for electric treatment. Medically recommended for the following complaints: nervousness, neuritis, lumbago, neuralgia, rheumatism, sciatica."

The coin being placed in the slot, an electrical current was felt by anyone who grasped the knobs; but this was not all, for at this point science ended and amusement began. By turning another handle the current was switched off and a ball appeared which fell through rows of pegs and passed out through one or six disappearing-places. The person who put the halfpenny in the slot had the chance to catch the ball in a cup in its progress before it disappeared. If he succeeded, a disc dropped out of another slot which entitled him to repeat the performance and meanwhile to get a packet of sweets or cigarettes. The legal question was whether the game was one of chance or of skill. In the Birmingham case three persons were convicted of keeping the confectionery and tobacconist business as a betting-house because of the presence of these machines upon the premises, and the Court of Criminal Appeal upheld the conviction. It was argued for the appellants that the investor of a halfpenny got primarily an electric shock, and that was the consideration for his investment. But the court declined to accept the so-called medical treatment as removing the transaction from the category of gambles.

THE CENTENARY OF UNIVERSITY COLLEGE, LONDON.

IN connexion with the centenary celebrations of University College four public lectures have been arranged, of which the first was delivered at the College by Prof. E. H. Starling on Feb. 28th. Sir John Rose Bradford, who presided on this occasion, will himself deliver the last of these lectures on University College, London, and Medical Education on May 13th at 8.30 P.M., when Sir George Thane will occupy the chair. The intermediate lectures will be given on March 14th and May 2nd respectively, by Sir Oliver Lodge on a Century's Progress in Physics, and by Dr. R. W. Chambers on Philology at University College.

Prof. Starling took for his subject

A Century of Physiology.

He gave a masterly survey of the progress of physiology from the time of Harvey to the third quarter of the nineteenth century, when, he said, the English physiological school might be said to have begun, its beginning being synchronous with the date of the foundation of the Physiological Society—namely, 1876. He continued:—

When we are tempted to be annoyed by the abuse and misrepresentation of those who bend their anti-scientific bias in the attempt to prevent experiments on animals, it is well to remind ourselves how much physiology in this country owes to the anti-vivisectionists. The antivivisection agitation, which has periodic exacerbations in this country as misguided old ladies leave large sums of money to be expended in such activities, had been especially active in 1874 to 1876. There had been a Royal Commission on the subject, and the first Act legalising and controlling experiments on animals was passed in 1876. It was the persecution and abuse to which the small band of physiologists was subjected that suggested to them the advisability of forming a society for mutual help and protection, and for the interchange of ideas, and after a preliminary meeting at Burdon Sanderson's house in Gordon-square, the Physiological Society was founded in 1876. Thus the Society has till the present time maintained the aims and objects for which it was founded, for mutual friendship and intellectual intercourse among working physiologists. In no country in the world do we find all the physiologists as in this country, working as one team, free from all cliques or jealousies, and interested only in helping one another and in advancing the science to which they are devoting their lives. From the time of its foundation physiology has advanced in this country with ever-increasing rapidity. The Society now numbers over 400 members, and the result of their common labours has been to put the English physiological school in the first place among civilised countries.

[Prof. Starling proceeded to recall the part played by the Physiological Laboratory at University College in bringing physiology in this country to its present position. He spoke of the work of Gaskell at Cambridge, and of Sanderson on the physiology of heart-muscle leading up to the investigations of Ringer and later of Sir Thomas Lewis at University College. Gaskell's work on the heart and on its nervous supply led him in another direction, the investigation of the sympathetic system, which was continued and developed at University College by Sir John Rose Bradford in conjunction with Bayliss, Dean, and Prof. Starling himself. He continued:—]

Localisation of Function in the Brain.

Another important chapter in physiology was opened in part from University College. Since the time of Flourens the brain had been regarded as acting as a whole, which no doubt it does, but this force was interpreted as indicating that there could be no localisation of function in this organ and that all parts of the brain had equal actions on, and were equally affected by, all parts of the body. In 1870 Fritsch and Hitzig in Germany showed that stimulation of certain portions of the cerebral cortex of the dog's brain evoked movements limited to certain groups of muscles, the muscles affected depending on the locality of the stimulus. These experiments were then taken up by Ferrier at the West Riding Asylum and by Ferrier in conjunction with Yeo at King's College, and the fact of localisation was confirmed and extended to the brain of the monkey. These researches were the starting-point of a whole number of careful investigations carried out at University College by Schäfer, Horsley, Beevor, Mott, and Risien Russell, and at that time the neurological school in England was more fruitful than that of any other country. The story was continued by Sherrington, a pupil of Michael Foster at Cambridge, first at St. Thomas's Hospital, then at Liverpool, and finally at Oxford. Sherrington's researches have transformed our conception of the activities of the central nervous system and offer the only reliable basis for a physiological psychology. While using the same methods, and inspired by Sherrington's teaching, Magnus, of Utrecht, has built up a conception founded on experimental data of the reflex activities of the lower parts of the brain which, with the results obtained by Sherrington and those of recent years by Pavlov in St. Petersburg, give us a working scheme of the whole activities of the central nervous system from their lowest to their highest manifestations. From these researches we have obtained an understanding of the manner in which the activities of the body are integrated by the central nervous system in relation with each other and with events in the external world. There is, however, another method of integration by which the *consensus partium*, the unity of the whole animal body, is studied—namely, the method of chemical integration. When Claude Bernard demonstrated the production of sugar in the liver and found its mother substance, glycogen, he spoke of the sugar as an internal secretion of the liver since it was furnished by the liver for the use of the other organs of the body. The recent researches of A. V. Hill in this College, which prove that the muscle is dependent on carbohydrates and on these alone for the production of the energy of muscular contraction, and the experiments which I am carrying on at the present time with Leonard Bayliss and Müller (which appear to show that the same holds good for the energy of the contraction of the heart) are evidence of the great importance of this internal secretory function of the liver. But nowadays when we speak of internal secretion we do not include under this heading the formation of sugar by the liver. There is another class of chemical correlations in the body in our knowledge of which, again, the first steps were taken in this College. After Gull and Ord had shown that myxœdema was associated with atrophy of the thyroid gland, Horsley, in confirmation of old experiments of Schiff, showed that this condition could be brought about by excision of the thyroid gland and could be removed by reimplantation of a thyroid gland. This led to the treatment of the disorder by oral administration of the dried gland, which is now in general use. Of the other so-called ductless glands we knew little except what clinical evidence supplied. Addison had shown that the disease bearing his name was associated with atrophy of the suprarenals. Marey called attention to the association of acromegaly and giganticism with enlargement of the pituitary gland. Schäfer and George Oliver in 1895 showed that from both these organs extracts could be obtained which had definite physiological effects, though it was difficult to correlate these effects with those clinical phenomena which had already been associated with atrophy or enlargement of these glands.

Secretin.

It was not till the discovery of secretin by Bayliss and myself in 1902 that we recognised that these so-called internal secretions were merely isolated

examples of a great system of correlation of the activities, chemical and otherwise, of different organs, not by the central nervous system but by the intermediation of the blood stream, by the discharge into the blood stream of drug-like substances in minute proportions which evoked an appropriate reaction in distant parts of the body. When we were investigating the conditions which cause the secretion of pancreatic juice, it had long been recognised that this juice is poured out into the intestine as the semi-digested food from the stomach enters the intestine. The secretion of pancreatic juice was regarded as analogous to the secretion of saliva, which is poured into the mouth when food is taken into this cavity, and so assumed, like the latter, to be due to a nervous reflex. We found that the introduction of acid into a portion of the small intestine entirely free from any nervous connexion with the rest of the body evoked a secretion of pancreatic juice. This must, therefore, have been due not to a nervous reflex but to a messenger of a chemical nature carried in the blood stream, which was the only means of communication between the loop of intestine and the pancreatic gland. This chemical messenger we found in fact to be produced in the mucous membrane of the gut and discharged into the blood stream under the influence of acid. We called the body *secretin* and recognised that it was only one of a large class of similar bodies which function in the chemical correlation of the different parts of the body.

[Prof. Starling referred to the other hormones since described and to the other substances equally essential to the carrying out of the normal functions of the body, known as vitamins, and proceeded as follows:—]

At the present time the volume of work being carried out in the Physiological Department with the greater facilities placed at our disposal by the gift of the Rockefeller Foundation is greater than at any previous period of the College history. Men and women are constantly engaged in research in the physiological and biochemical departments. There is probably no subject which I have mentioned in my review of the work of the last 50 years which is not the subject of investigation. In my own department I have returned to some of the questions which agitated Harvey and which he left for "future inquiry"—namely, the method by which the heart can adapt its marvellous activities to the needs of the body as a whole, so that it can beat fast or slow, at a high or a low blood pressure, and alter its output and the volume of the circulation six to ten times, according to the activities of the body, and especially according to the muscular activities. In this, as in every other investigation of an organ, we must proceed by analysis and by synthesis. First isolate the organ and, keeping it alive, study its powers and its reactions to such mechanical and chemical conditions as may be imposed upon it in the body. Thus one by one we have to reconstruct the influences to which it is subject in the body, chemical and nervous, and out of our experiments build up a picture of the total of its reactions as they occur in the intact animal. We have seen in this way how to a large extent the power of adaptation is inherent in the properties of the muscular wall of the heart itself, but how under ordinary circumstances this mechanism is economised and anticipated by the action of the nervous system, which can quicken or slow the rate of the heart, raise or lower the blood pressure, increase or diminish the force of contraction in accordance with impulses proceeding from the heart, from the arteries, from the periphery of the body, as well as from the cerebral hemispheres themselves. It is especially to Anrep that we owe the elucidation of the reflex mechanisms for the control and regulation of the heart's action.

But it is with the past, not the future, of physiology and the physiological department of the College that we are to-day concerned. That past is full of promise and our actual gains bulk little in comparison with what we hope and expect to achieve. So I would take exception to a recent description of the present time as the "golden age of medicine." We associate "a golden age" with an epoch of great achievement which then dies away and comes to an end. But physiology and the science of medicine have hardly begun. As I have pointed out, the greater part of the physiological edition of to-day dates from the last 50 years, and has been raised within the lifetime of many of us. And every year more workers and greater powers are enlisted in the service of research, so that the rate of increase of knowledge grows in geometric proportion. Nor can we foresee any time at which this growth can come to an end. It is not like the town of Babel, erected as a monument of arrogance and vanity and brought to an end by a strife of tongues. Unless the scientific worker approach his task with humility and self-abnegation—the brick he would contribute to the giant edifice of science crumbles away even before it is in position. And the strife of tongues is impossible, for science throughout the world has but one language—that of quantity, and but one argument, that of experiment. Experiment has dethroned the word. So while civilisation endures in any part of the world the growth of science must go on, and with it an ever-increasing control by man of his environment and of his destiny.

The Services.

THE DIRECTOR-GENERAL, R.N.

Surg. Rear-Admiral Arthur Gaskell, C.B., O.B.E., who, as stated below, has been appointed to succeed Sir Joseph Chambers as Director-General of the Medical Department of the Navy, joined the Service in 1893, became staff surgeon in 1902 (for conspicuous professional merit at Wei-hai-wei), fleet surgeon in 1906, surgeon captain in 1920, and rear-admiral in 1923. He has been director of medical studies and professor of hygiene, No. 1 hospital ship, A.D.M.S., R.N. Division, R.N. Hospital, Simonstown, and also in temporary charge at the R.N. Hospital, Chatham.

TEMPORARY COMMISSIONS AT HOME STATIONS IN THE R.A.M.C.

The War Office announces vacancies in the Royal Army Medical Corps for temporary officers to be employed at home stations. Candidates for these commissions must be registered medical practitioners, under 35 years of age, and they will be required to give an undertaking to serve for at least six months. After that period appointments will be terminable by a month's notice on either side. Accepted candidates who fulfil the necessary conditions will be considered for permanent Commissions if they so desire. Pay for those who have not previously served in the Royal Army Medical Corps will be at the rate of £600 per annum; but the initial rate for those who have served for not less than 12 months as officers of the Corps will be £650 per annum. In each case there will be an outfit allowance up to £40. Applications should be sent to the Under Secretary of State, The War Office, Whitehall, S.W. 1, from whom full particulars may be obtained.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Rear-Admiral A. Gaskell, C.B., O.B.E., has been appointed to the *President* for duty inside Admiralty, and as Director-General of the Medical Dept., vice Surg. Vice-Admiral Sir Joseph Chambers, K.C.B., C.M.G.

Surg.-Lts.—J. G. Currie to *Beaufort;* and E. C. Downer to *Flinders.*

ROYAL ARMY MEDICAL CORPS.

Lt.-Col. E. P. Connolly, from R.A.M.C., to be Col., vice Col. J. W. H. Houghton, to ret. pay.

The undermentioned Lt.-Cols., Reg. Army Res. of Off., to be Majs., whilst re-empld., Royal Warrant for Pay and Promotion, and relinquish the rank of Lt.-Col.: J. L. Wood and W. E. C. Lunn.

Capts. to be Majs.: H. A. Rowell, C. F. Anthonisz, and S. O. Dolan.

Temp. Lt. R. L. J. Le Clezio relinquishes his commission.

ROYAL AIR FORCE.

Flying Offs. L. C. Palmer-Jones and T. W. Wilson to be Flight Lts.

Temp. Lt. W. D. Guyler (General List, Army Dental Surgeon) is granted a temporary commission as a Flying Officer on attachment to the R.A.F. He will continue to receive emoluments from Army sources.

Correspondence.

"Audi alteram partem."

THE CANCER PROBLEM AND THE EDUCATION OF THE PUBLIC.

To the Editor of THE LANCET.

SIR,—At a recent meeting of the Epidemiological Section of the Royal Society of Medicine the possibility of reducing the present mortality of cancer of the breast and uterus was discussed.[1] The openers made out an excellent statistical case in favour of such possibility but received no answer as to its practicability. May it not be of value to discover the views of a larger section of the profession?

In attacking a problem of this nature it is obviously necessary to accept facts as they are, not as they might be or ought to be; but there seems to be a more or less general tendency to idealise them. For this reason far too much attention is paid to surgery in the treatment of the disease. Surgery is merely a makeshift. It is, perhaps, the most efficient method at our disposal in present circumstances, but the terrible mutilation which it causes renders it, and must always render it, a most undesirable resource. In this, as in many other researches, thought follows a beaten track instead of exploring new fields. Hitherto all suggestions have been such as offer little hope of advance.

For instance, the common cry is for earlier diagnosis, but no attempt is made to define what is meant by the term. In many cases diagnosis can be made at sight, the disease is so advanced, and in one sense earlier diagnosis is impossible—it could never be made before the patient is seen. This should not be considered a matter of earlier diagnosis, but of earlier application for advice. On the other hand, given the patient, diagnosis is probably already possible as early as it is ever likely to be. Cancer is a steadily progressive disease, apparently purely local in its origin, but sooner or later spreading to distant parts. There is good reason to believe that the malignant process may be in existence for some considerable time before symptoms or signs of any kind give warning of something amiss. Consequently in a large proportion of cases it may well be (and it seems to me that it certainly is) that by the time diagnosis is possible the disease has spread so far that cure is impossible. This is not, and is not intended to be, an argument against making every effort to establish a diagnosis in the earliest stages; it is a very strong argument against expecting by this means to effect any great improvement on the present results of treatment; and a still stronger argument against focusing attention too strongly upon this method, and not seeking everywhere for a better. Even should some serological or biochemical test eventually be found whereby cancer may be certainly diagnosed the difficulty will not be overcome, for the test will only be applied after the appearance of some clinically suggestive evidence has been found. It thus follows that not early diagnosis (in the above sense) but early applications for treatment should be considered the more important factor at the moment. And how can this be brought about? Only in one or both of two ways—viz., by education of the public and education of the profession.

Compulsory education has failed to enlighten the ignorance of a large part of the public, voluntary education must fail in an even larger part. Many could never be educated, many more have no desire to be educated, and even of those who could be educated many would remain uninfluenced because of other considerations. In speaking of malignant disease of the breast and uterus, apart from the modesty of sex, which education might to some extent modify, fear plays a large part in preventing recourse to a doctor—fear of the operation which the woman expects to be recommended; fear, even, of having her suspicions confirmed, and learning that what she suspects to be cancer is so in fact. Not a few would prefer to live in a fool's paradise and try to persuade themselves that all is well rather than know the truth. That any considerable number of women who could be taught by such educational methods, are now ignorant of the significance of certain symptoms and signs I find it difficult to believe. But even if, by this means, only a life here and there is saved then it is worth while doing. To organise a plan of public instruction, to teach all that is possible, to do everything practicable to induce patients to seek early advice, is highly desirable, but we must not expect the results to be apparent as a great fall in the mortality from cancer.

Nor does education of the medical profession offer much hope, for practitioners, as a body, are already hard-working, conscientious, and substantially accurate in their knowledge. But difficulties are meant to be overcome, and clearly anything that can be done by education should be done thoroughly and without delay. Nothing in this letter is intended to encourage the adoption of an attitude of idleness and despair. On the contrary, its whole aim is to direct attention to the fact that so far little has been done to solve the problem, and that little can be done along the lines generally followed, and to urge the necessity for more investigation, the opening up of new ground.

Pessimism is apparently not popular in this connexion, so much that might be said I leave unsaid. In one direction, at any rate, optimism appears justified. Of recent years enormous advance has been made in the investigation of the cause of cancer. The part played by chronic irritation has been thoroughly established. But more must be done. Is all cancer the result of irritation? And what are the irritants responsible? That both these questions will in time be answered there is no reason to doubt, and the answer is the crying need of the moment. I do not by any means hold that once the cause is known a cure will follow, but it should prove possible by removing the cause, by preventing its coming into action, to prevent the development of the disease.

What is required, then, is research, and more research, by thoroughly competent workers, into the causation of cancer; for only thus is it probable that any material decrease in the present mortality of the disease can be effected. Much is already being done, but much more might be done by those who are at present hampered and restricted by inadequate accommodation and insufficient assistance for the proper carrying out of their work. Until some more profitable line can be discovered, it is to this end, it seems to me, that effort should be chiefly directed.

I am, Sir, yours faithfully,

STANLEY WYARD.

Upper Wimpole-street, W., Feb. 27th, 1927.

[1] THE LANCET, Feb. 5th, p. 303.

THE BLOOD-GROUPS OF "IDENTICAL TWINS."

To the Editor of THE LANCET.

SIR,—May I bring forward still another point of great interest suggested by the correspondence under the above heading. I have wondered for a long time past—as, doubtless, many others have, though I have never actually seen the suggestion anywhere—whether an antagonistic "blood-grouping" of the fœtus can possibly account for eclampsia or other pregnancy toxæmias? Until Mr. Geoffrey Keynes's letter appeared in THE LANCET (Feb. 26th) I did not know definitely that the blood-groups of mother and fœtus were sometimes different; but, this being so, it does not seem unreasonable to suggest that when this factor is present we have a very possible focus of pregnancy toxæmia. It would be helpful to know if any research has been undertaken upon this point. I am, Sir, yours faithfully,

Bath, Feb. 25th, 1927. DOUGLAS A. MITCHELL.

VENTILATION IN THE HOME.

To the Editor of THE LANCET.

SIR,—Public opinion in favour of reducing our output of domestic smoke has undoubtedly been quickened by the recent shortage of coal, and people generally are showing a much closer interest than heretofore in the problem of heating and ventilating the home. But reforms are seldom achieved without some abuses, and one effect of the increased demand for various smokeless appliances as an alternative to the coal grate has been the marketing of many kinds of cheap heaters which do not fulfil the most elementary requirements of domestic hygiene. I refer particularly to so-called portable heaters—gas, oil, and electric—which either discharge the products of combustion into the air of the room or, because they are unconnected with a chimney or flue outlet, fail to induce an adequate influx of fresh air, which is essential to the proper ventilation of a room.

Medical men naturally have a keen appreciation of the importance of ventilation in the home, but perhaps it is not fully realised that certain types of flueless heaters—especially gas-heaters—which may be safe enough in corridors, halls, churches, large rooms, and other places where there is a constant and free circulation of air, are a positive menace to health when used in the bedrooms or living rooms of the average-sized dwelling-house. While, therefore, as one whose work is largely devoted to mitigating the smoke evil, I am not inclined sweepingly to condemn every form of heater which is not connected with a chimney or a flue of adequate size, I would lay it down as a general principle that flueless gas stoves for heating living rooms should be looked on with suspicion. The size of the apartment and the amount of free ventilation are determining factors in deciding on their suitability.

No fuel-using appliance consumes its own products and so-called "condensing" stoves condense little else but water. When coal-gas is completely burned, the products of combustion consist chiefly of carbon dioxide and water vapour, these escape directly into the surrounding atmosphere, unless led into a suitable chimney or flue. If a flueless heater is correctly designed, and no mistake in working it or leakage occurs, the products of combustion are comparatively harmless. An ordinary seven radiant gas-fire connected with a chimney burns approximately 30 cubic feet of gas per hour and produces as much carbon dioxide as about 15 men. With a flueless fire it would be necessary to burn only about 20 cubic feet per hour, but then all the products would enter the room, and, so far as carbon dioxide is concerned, the effect would be equivalent to about 10 men. Unfortunately, this is not the whole story. Probably the greatest danger is the production of CO when the gas-fire is not correctly designed, and the flames, owing to proximity to cool surfaces, are not allowed to complete their combustion to CO_2. The same result might follow in the case of a flueless heater of correct design if the ventilation is not sufficient to prevent the accumulation of CO_2 and provide oxygen to ensure complete combustion.

In rooms heated by flueless gas-fires and not adequately ventilated, the humidity of the air rapidly increases while the oxygen is depleted, and both of these have injurious effects. This ventilation difficulty is a very real one, as people are tempted to cut down the supply of fresh air to a minimum in order to economise heat, which reacts unfavourably to the use of flueless heating of any kind. There is again the danger of leakage from the flexible tubes with which flueless gas-fires are often fitted. The points I would stress are those amplified by Sir Napier Shaw and myself in our book "The Smoke Problem of Great Cities":—

1. Gas-fires should have a free entrance for air to the chimney, independent of the flue drawing the products of combustion from the fire. This is provided for in the modern "ventilating" gas-fires by an air entrance under the canopy.

2. The heating and ventilating of houses should be inseparable, and any method of heating which does not itself produce a ventilating effect should be looked on with suspicion.

The foregoing remarks will, I trust, be of some assistance to members of a profession, which is necessarily closely interested in the question of ventilation of the home and has done so much to rouse public opinion to a realisation of the baneful effects on health of smoke and fog.

I am, Sir, yours faithfully,

Feb. 26th, 1927. J. S. OWENS.

JENNER'S REAL CLAIM.

To the Editor of THE LANCET.

SIR,—In Dr. James Bennett's address entitled Pending Changes in the Administration of Vaccination, in THE LANCET of Feb. 5th, he refers to the "wonderful discovery of Jenner." The "discovery" was made so long ago that probably very few men at the present time are aware of what Jenner really claimed to have discovered.

Cow-pox is a vesicular disease affecting the cow's udder in milk. It is contagious, not infectious, and bears only the remotest resemblance to small-pox. In the eighteenth century it was prevalent over the whole of the United Kingdom and elsewhere. There was a myth existing in the West Country, purely local, as so many superstitions are, that milkers who had contracted cow-pox were rendered immune to small-pox. Jenner, being a general practitioner in Gloucestershire, was quite familiar with this myth. He frequently broached the subject to his medical colleagues at his club (the Convivio-Medical at Alveston), and according to Baron, made himself somewhat of a bore, as most of them had frequently seen cases of small-pox following cow-pox, and knew it to be only a superstition, and told him so. Jenner knew that cow-pox, as generally met with, was not a prophylactic against small-pox.

Let us now see what he himself always claimed to have discovered. In 1898 he published an essay (which the Royal Society had declined to publish) entitled "An Inquiry into the Causes and Effects of Variolæ Vaccinæ, a disease discovered in some of the Western counties of England, particularly Gloucestershire, and known by the name of the Cow Pox." It is important here to notice, first the use of the word "discovered," and secondly, that he states that cow-pox was small-pox of the cow. Not once in the body of the inquiry does he attempt to justify such an outrageous statement.

I proceed to quote from the inquiry:—

"There is a disease to which the Horse, from his state of domestication, is frequently subject. The Farriers have termed it *the grease*. It is an inflammation and swelling in the heel, from which issues matter possessing properties of a very peculiar kind, which seems capable of generating a disease in the Human Body (after it has undergone the modification I shall presently speak of), which bears so strong a resemblance to the Small Pox, that I think it highly probable it may be the source of that disease.

"In this Dairy Country a great number of Cows are kept, and the office of milking is performed indiscriminately by Men and Maid Servants. One of the former having been appointed to apply dressings to the heels of a Horse affected with *the grease*, and not paying due attention to cleanliness, incautiously bears his part in milking the Cows, and some particles of the infectious matter adhering to his fingers. When this is the case, it commonly happens that a disease is communicated to the Cows, and from the Cows to the Dairy Maids, which spreads through the farm until most of the cattle and domestics feel its unpleasant consequences. This disease has obtained the name of the *Cow Pox*."

Of course, this is stultilogical. Grease is seborrhœa of the horse's heels. He then gives a fairly accurate description of the natural cow-pox affecting the cows and milkers.

"Thus the disease makes its progress from the Horse (as I conceive) to the nipple of the Cow, and from the Cow to the Human Subject.

"Morbid matter of various kinds, when absorbed into the system, may produce effects in some degree similar: but what renders the Cow Pox virus so extremely singular, is, that the person who has been thus affected is for ever after secure from the infection of the Small Pox: neither exposure to the variolous effluvia, nor the insertion of the matter into the skin, producing this distemper."

He produced no proof that grease could cause cow-pox on the teats of a cow; or did he make any experiments, as he might easily have done, to test the truth of his assertion.

Jenner, after the publication of the inquiry, was soon inundated by reports from medical men and veterinary surgeons of repute in the neighbourhood of persons who were attacked with small-pox after having had cow-pox. He did not hesitate to get over the difficulty. He published "Further Observations &c., &c.," in which he states that there was a *spurious* cow-pox the use of which would account for the failures. He writes:—

"Would it not be discreet for those engaged in this investigation to suspend controversy and cavil until they can ascertain with precision what *is* and what *is not* the genuine Cow Pox."

Again—

"One of the first objects then of this pursuit, as I have observed, should be, to learn how to distinguish with accuracy between that peculiar pustule which is the *true* Cow Pox, and that which is *spurious*. Until experience has determined this we view our object through a mist."

He here admits that the *genuine* and *spurious* cow-pox are indistinguishable. The suggestion of *spurious* cow-pox, however, served well his purpose. Whenever small-pox followed cow-pox, the latter was *spurious;* and, on the other hand, if perchance small-pox did not develop, that was evidence that the person was protected by the *true* cow-pox—the horse-grease cow-pox of Jenner!

We are now in a position to ask, What was the "wonderful discovery" of Jenner? He did not discover cox-pox. That was universally known. He did not discover that cow-pox was a preventive of small-pox. He knew it was not. The only discovery he laid claim to was the horse-grease cow-pox. And there is no such disease. Indeed, he was wise enough to drop it on the advice of Woodville, who wrote him "the very name of horse-grease was like to have wrecked the whole concern."

In conclusion, let me quote from M. Fabre, one of the greatest observers who ever lived:—

"An incomplete observation wrongly interpreted, sets the story going. Then come the compilers, who faithfully hand down the legend, the unsound fruit of the imagination; and error, confirmed by repetition becomes an article of faith."

I am, Sir, yours faithfully,

H. H. TAYLOR, J.P., F.R.C.S.

Hove, Feb. 26th, 1927.

CONTRACEPTIVES.

METHODS IN COMMON USE COMPARED.

To the Editor of THE LANCET.

SIR,—Having special interest and practical experience in the ordinary "birth control" methods, I should like to enlarge upon or criticise Dr. Giles's comments in his address on the subject reported recently in THE LANCET. Whether or no we approve, it is obvious that the whole question grows in importance and that the practice is very widespread. The facts must be made clear and faced frankly.

When Dr. Giles says that restrictions early in married life rob marriage of much of its proper "romance," I suspect he must be thinking of the minority of comfortably-placed parents of middle and upper classes. There is little "romance" among the overcrowded people of the industrial areas where I work, and this "romance" is not fostered by endless childbearing, starting in young girls on the threshold of life, who, a few months after the marriage ceremony, are in the throes of labour, with all the real freedom of youth ended ere it has scarce begun. Pregnancy and parturition themselves are, under most conditions, anything but romantic—they are too often the beginning of economic difficulties, home imprisonment, changed bodily appearances (if not changed bodily health) which thrust maidenhood into matronhood rudely and abruptly.

Disillusionment can also, of course, follow childless unions, but surely there is a happy mean? Anyway, I do not believe the widespread use of contraceptives is always due to selfishness—may it not be equally well *an ideal?* Could we not credit people with a real desire to avoid the wastage and misery of the hordes of unwanted, useless lives that are thrust daily into this world? Is the daily prayer and hope that sexual intercourse will not result in undesired pregnancy any better than the mutually agreed effort to make certain it won't? The very fact that the question is controversial and difficult commends it to our impartial study. Admitting its popularity, let us have proper teaching and regulation rather than ignorant misuse.

The *methods themselves* need a more detailed analysis.

1. *Abstinence.*—I quite agree with Dr. Giles's remark on the impracticability of this, but he seems inconsistent when he says previously, "Let such people" (i.e., those who marry but avoid pregnancy to "enjoy" their youth) "enjoy themselves and have a good time, and wait to get married, &c.," and this, under modern conditions. We all know what a "good time" means in these days; it entails considerable *abstinence* under constant sexual stimulus and too often ends in irregular intercourse (or its substitutes), disease and illegitimacy. So many of the sexual troubles, direct or indirect, of our young people are due to *postponement* of marriage till long after the age of fullest sexual vigour and to the *disharmony* which this produces. Better, surely, a childless marriage at first than the daily unpublished tragedies of perverted and promiscuous "love." As Dr. Giles says: "It asks too much of human nature and opens the door to irregular practices and unhappiness"—and far worse.

But why this common suggestion that sexual congress is a peculiar weakness, nay, crime almost, of *human* nature. Is it not the most natural and powerful instinct through the whole fauna and flora of the world? Under proper conditions there is nothing to be ashamed of. It is this strange teaching of hypocrisy and secret, censorial attitude which does so much harm. The forbidden and mysterious have always an unhealthy attraction.

2. *Restriction to Safe Period.*—Not only is this most unreliable, but reduces coitus to a *regular habit* or ceremony every month and ignores the all-important æsthetic and affectionate aspects, &c., as well as all consideration for the desires and moods of the female partner. At the risk of being accused of "eroticism," I would emphasise the importance of *mental harmony* and mutual romanticism in an act which affects so profoundly every cell of the body and every emotion of the mind. This especially applies to woman, and if there is any choice she should be the one to make it. In my opinion the method, if it can be called one, is to be condemned as useless or mentally harmful.

3. (*a*) *Coitus Interruptus.*—I would not only not recommend this, but condemn it wholesale, as the *worst of all*, for these, among other reasons already mentioned by other authorities. It is not only unnatural, but, for most men, impossible without unpleasant practice. Even with this practice, *fear of failure and the strain of divided attention*, on both parties, have serious effects on the natural and *mutual* climax of the act. It abolishes the equally *natural rest* and mutual *support* of the parts during deturgescence. If successful, it produces a sense of *revulsion* (if only by the misplacement of semen) in rightly sensitive women; while, even so, it is quite *uncertain*, since, under sexual excitement, there may be leakage of

vesicular fluid containing spermatozoa. Further, violent withdrawal is often *painful* to the woman and might even favour prolapse. Above all, with its serious consequences, there is the *curtailment of the act* and sudden break in the psychic chain for the female partner, which leaves every part in a state of unresolved, tense excitement.

3. (*b*) The *condom* is, I agree, convenient, fairly safe, and available under most conditions—even by the most ignorant—but it has many objections not mentioned by Dr. Giles. It is, if really reliable, very *expensive*. Even the best makes get torn under the common difficulties of some sexual relationships. Unless previously lubricated, rubber is very apt to obstruct penetration; this causes some pain and difficulty. Artificial lubrication, which is seldom necessary under normal conditions of free secretion, is æsthetically objectionable, and the same may be said of putting on a sheath just before coitus (obviously erection is necessary). At any other great emotional moment, such an irrelevant interruption would be devastating. Moreover, the wide use and recommendation of this method may over-popularise the condom to the detriment of morals, since it is the only one available for promiscuous and unpremeditated intercourse which dispels the two chief inhibitory fears of disease and conception.

4. *Rubber Check Pessaries in Vagina.*—This method, in my experience, is free from nearly all the objections in connexion with other methods and equally, if not more, certain in action. Above all, the pessary can be *fitted, unobtrusively, long before the act and forgotten*, so that the natural spontaneity and "romance" (for want of a better word) of the act is in no way interfered with. The complicated psychic processes can run their course smoothly and harmlessly. No method is as yet ideal, and I will concede the *difficulty of fitting* for an ignorant or dirty mother. But even this is exaggerated and most women can be instructed in this as they can be instructed to clean their teeth or do their hair. The dangers of sepsis and improper application are those inseparable from all misuse and dirty habits. The pessaries are *inexpensive* and last a long time with ordinary care. Safety, almost amounting to certainty, can be guaranteed if they are used in conjunction with quinine pessaries.

5. (*a*) *Soluble Quinine Pessaries.*—The apparent excellence of these is qualified by two or three objections: they are *expensive* and just as great—in fact a greater—"source of revenue to those who sell them," as Dr. Giles would have us believe about check pessaries. They always make *greasy stains* on bedding or clothes; then the smell of cocoa-butter is distasteful to many, and the part played by the olfactory sense in sex is too often ignored; they entail objectionable fumbling just before coitus. Further, they are by no means certain in action if used alone, since some of the spermatozoa may be injected straight on to the os externum, while the melted quinine-butter will lie in the fornices out of the way. The power of traces of quinine (manufacturers are naturally sparing with an expensive drug) to penetrate a mucous mass is doubtful.

5. (*b*) *Douching* is to be *condemned* not only on account of the liability to the production of chill and shock. For the ordinary self-administered douche seldom reaches the fornices, and the effect of washing out the natural flora and bactericidal secretions of the vagina can be nothing but harmful. The syringe itself is clumsy, awkward to pack, and difficult to keep clean.

From the "romantic" point of view, again, this method is ruinous, both to the husband conscious of the sordid performance going on nearby and to the wife, cold and disturbed, in an anti-climax of feeling. The natural sleep and sense of comfort which should follow complete coitus is rudely interrupted. The sublime too often descends to the ridiculous through neglect of detail.

I am, Sir, yours faithfully,

HUGH A. FAWCETT, M.R.C.S., D.P.H. Lond.

Penn, Wolverhampton.

THE ÆTIOLOGY OF CARDIOSPASM.

To the Editor of THE LANCET.

SIR,—Mr. John Morley in his instructive paper on cardiospasm in THE LANCET of Feb. 26th justly implies that the generally accepted explanation of the ætiology of cardiospasm—viz., an incoördination of the neuromuscular mechanism of deglutition—is no explanation at all.

It is commonplace knowledge that the anal sphincter can be demonstrated in full and sustained contracture when the neighbouring mucosa is the seat of a fissure. It seems to me to be probable that the physiological sphincter of the cardia may also be thrown into a state of irritation when its overlying mucosa is abraded, or, what is more probable, when the neighbouring mucous membrane is the seat of a (small) chronic ulcer. This simile is heightened by the fact that excellent results are obtained by digital dilatation of the respective sphincters in each of these conditions.

To substantiate this claim in the case of cardiospasm, we have only to refer to Mr. Walton's paper in the *British Journal of Surgery* of April, 1925.

I am, Sir, yours faithfully,

Birmingham, Feb. 25th, 1927. HAMILTON BAILEY.

OPHTHALMIC BENEFIT.

To the Editor of THE LANCET.

SIR,—I venture to say that few medical men, and still fewer ophthalmic surgeons will have read the extraordinary letter from Mr. Adrian Caddy which was published in your last week's issue without considerable astonishment. One finds in it a lofty detachment from the affairs of his brother practitioners, but one looks in vain for any sign of *esprit de corps* or for a scrap of evidence in support of his assertions. He "gathers" this, he "would go so far as to say" that this is "probably" so, and that "might be the case."

These are mere words for words' sake; they provide no material for thought. Mr. Caddy asserts that the vast majority of eye cases require glasses only. There may be two opinions about that, but perhaps Mr. Caddy will agree if I suggest that all eye cases who go to sight-testing opticians will be sold a pair of glasses, whether they are in that vast majority or in the minority who do not require glasses.

What grounds has Mr. Caddy for stating that opticians in 80 per cent. of cases prescribe correct glasses? Has he spent a week or two in an optician's shop, checking the optician's treatment by personal examination of his clients? If he has not, then I think it is fair to state that his figures are pure assumption and therefore valueless.

Mr. Caddy is at pains to explain that he thinks that little *real damage* can be done to the eyes by unrestricted prescribing by opticians. No ophthalmic surgeon believes that any actual damage can be done to the eyes in this way. If he ever says so, it will only be in warning patients against sight-testing opticians, and it then becomes simply a justifiable hyperbole. Mr. Caddy cannot be ignorant of the reason why we warn our patients against sight-testing opticians. Leaving aside *real damage* to the eyes, there is such a thing as morbidity, such a thing as interference with the exercise of the functions of the eyes. May I illustrate what I mean; just before reading Mr. Caddy's letter I saw a tailor who had compound hypermetropic astigmatism. The glasses he required were as follows:—

Rt. +0.5 sph. +3.5 cyl. 70°. Lt. +0.5 sph. +3.0 cyl. 110°.

For 18 months he had been wearing lenses suitable for the correction of compound myopic astigmatism, sold to him by a sight-testing optician. That man would have been saved months of pain and discomfort, and would have been more efficient and have earned a good deal more money at his trade

if he had never seen the optician's winking-eye sign. It would be a simple matter to compile a formidable list of such errors from our case-books, yet we would never expect to find any *real damage* done to the eyes. Mr. Caddy, by almost apologising for a non-existent danger of unqualified practice, has concealed the real danger—for discomfort and loss of efficiency is a real danger to the community.

I would agree with Mr. Caddy's suggestion that the ophthalmic panel should consist of men practising ophthalmic surgery only. Human nature being what it is, we all agree that it opens the door to abuses, to give doctors the opportunity of referring cases for ophthalmic benefit to a member of their own firm. One has to admit that, under such circumstances, patients may be referred unnecessarily. Similarly, a man who goes into an optician's shop will frequently have considerable pressure put on him to buy a pair of glasses whether he needs them or not.

Mr. Caddy's penultimate paragraph prompts me to apply to Murray's New English Dictionary, where I find—Optician: a maker of, or dealer in optical instruments. Oculist: one versed in the knowledge or treatment of the eyes.

One might therefore define an "unnecessary" interview with an ophthalmic surgeon as an interview with him by a person who had no trouble with his eyes. If a person has any trouble with his eyes, the man to whom he ought to go is the oculist, and the interview is then not "unnecessary."

After all, to whom does the wealthy man or the educated man go if he is in trouble with his eyes—he goes to an oculist and if glasses are required he has them made by an optician. To whom does the poor man go—to perhaps the same oculist at a hospital, where his prescription is made up by a dispensing optician. This is the ideal way to go about it, and there is no unnecessary waste of time—the optician takes just as long as, or even longer, than the oculist to test the vision. The people who support the sight-testing optician are getting only second-best, inexpert and not disinterested advice, and one is sorry to see a surgeon of repute countenancing such a system.—I am, Sir, yours faithfully,

ALEX. G. LUMSDEN.

Wimpole-street, W., Feb. 28th, 1927.

AN APPEAL FOR SUPPORT.

To the Editor of THE LANCET.

SIR,—I beg that you will kindly permit me to make an appeal in your columns for a monetary grant in aid of my researches, as I have failed to get one from different sources appealed to, and my work is greatly hampered for lack of funds.

We have found here that toxins occur in the blood of animals treated by liver grafting and have published a note on that in the *Journal of Physiology*, December, 1926. We can now state that similar toxins result from the action of certain drugs and probably from certain methods of procedure to be published very soon. These facts seem to have an important bearing on Rontgen sickness, on blood transfusion, and on many biological problems which interest the medical profession.

I am, Sir, yours faithfully,

D. T. BARRY, F.R.C.S., M.D.

Physiological Department, University College, Cork, Feb. 25th, 1927.

FEDERATION OF THE HEALTH RESORTS OF FRANCE.—An information bureau has been established in London by this Federation, whose full title is the "Union des Etablissements Thermaux et Stations Climatiques de France." New offices have been taken at 19A, Tavistock-square, and Mme. Juppé-Blaise has been appointed manager. Full information will be available at the bureau concerning the spas and health resorts of France, and arrangements can be made through it for travelling facilities and for hotel accommodation. The new organisation has been planned to give full replies to all inquiries concerning residence in France.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Dr. Haden Guest.

DR. HADEN GUEST, who has been a member of the Labour Party in the House of Commons, since 1923, has resigned from the party, owing to his disapproval of the official attitude of the Opposition toward the Government's policy in China. It is believed that he will at once apply for the Chiltern Hundreds.

HOUSE OF LORDS.

WEDNESDAY, FEB. 23RD.

LEAD POISONING—SIR T. LEGGE'S RESIGNATION.

Lord ARNOLD called attention to the resignation of Sir Thomas Legge from the position of senior Medical Inspector of Factories and to the Draft Regulations made under the Lead Paint (Protection Against Poisoning) Act, and moved for papers. There was no doubt that the use of lead paint had been the cause of serious injury to the health of many workers. For some years there had been several hundreds of cases of plumbism annually, and probably about 40 deaths per annum occurred owing to lead poisoning. The consequences of this disease, which were always bad, were sometimes extremely grave, because even when not fatal some of the cases led to paralysis and some to blindness. It was with a view to stopping the suffering caused by this terrible disease that under the auspices of the International Labour Office of the League of Nations a Draft Convention was agreed to at Geneva in 1921 by the representatives of 30 countries, including Great Britain, and under that Convention the use of lead paint for interior work was to be prohibited after 1927. It was, to use no stronger language, extremely regrettable that the Conservative Party in the Act passed last year went back on this Convention and instead of prohibiting the use of lead paint for interior work merely enacted that its use should be regulated. The Act, when passing through Parliament, was strongly opposed by the Opposition on the ground that the Bill was a breach of what was agreed to by this country at Geneva in 1921. That accusation had been enormously strengthened owing to the resignation of Sir Thomas Legge, who had resigned his position under the Home Office solely on account of the action of His Majesty's Government in this matter. Sir Thomas Legge, as one of the delegates of the British Government at Geneva in 1921, voted there for the Draft Convention, and he was not willing to be a party to going back on what he then did.

Their lordships would be aware that it was a very unusual circumstance for a civil servant to resign on a point of disagreement with the Government, and the fact that Sir Thomas Legge had felt it his duty to do so emphasised in the strongest possible way the Government's breach of honour in this matter. Sir Thomas Legge, as a civil servant, could, of course, have claimed that the responsibility was that of the Government, but so keenly did he feel that what had been done was wrong and that it would mean suffering and death which would otherwise be avoided to many men that he was not willing any longer to remain in the service of the Home Office. Nothing whatever had happened since 1921 to warrant the Government going back upon the decision then taken, and the position was rendered all the worse because the proposal at Geneva which led to the Draft Convention being unanimously agreed to was actually made by Great Britain. It was the white lead manufacturers of this country which formed the vested interest which caused the Conservative Government to break faith and to pass the measure of last year. Sir Montague Barton knew that the Convention was not wholly acceptable to the white paint manufacturers when he voted for the Convention at Geneva. The harm done by lead paint in interior work mainly arose from rubbing down the old paint in order to prepare the surface for the new paint. In this process particles of dust were spread about and got into the worker's system, chiefly through the lungs, and caused poisoning. The same thing did not occur to anything like the same extent in external painting, because in that work very much less rubbing down had to be done, and the work being done in the open air the particles of dust were blown away. Waterproof sandpaper was supposed to meet the difficulty but in practice the case for waterproof sandpaper broke down. So many things had to be done in connexion with its use that in practice they would hardly ever be done. Moreover, the sale of waterproof sandpaper among house painters had so far made very little progress. The vital point in all this matter, and one which hitherto the Government had entirely failed to apprehend, was the injurious effect of the

action of Great Britain on future international meetings at Geneva for the purpose of raising labour conditions. Great Britain who had been in the forefront of civilised countries in efforts for raising those conditions, bid fair to lose her influence abroad in these matters and to become an obstacle instead of a help to progress. The Home Secretary had used words in the House of Commons in connexion with this matter which he (Lord Arnold) thought ought not to have been used, because they gave a wrong impression. He began by saying that Sir Thomas Legge, having reached the pensionable age, asked to be allowed to retire. As a matter of fact, the pension age had nothing to do with the matter. Even if Sir Thomas had reached the retiring age—which he had not—there was no reason to suppose in view of his experience that his term of service would not have been somewhat extended; indeed, the Home Secretary when pressed admitted that that was so. The Home Secretary also said that Sir Thomas Legge gave as the reason for his resignation the fact that he did not wish to be concerned in the administration of the Lead Paint Act. That statement was not really in accordance with what occurred. The main reason Sir Thomas gave was that he could not recede from the position he had taken up at Geneva. In the letter which was sent out by the Home Office dated Dec. 31st, 1926, explanatory of the Draft Regulations under the Lead Paint Act it was stated that the terms of the Regulations had been discussed at a series of conferences between the Home Office and various bodies, including among others the National Operative Painters' Society, and that complete agreement was arrived at. That statement was grossly misleading. The fact was that the Regulations referred to were nearly all drafted to apply to external painting and were drafted as long ago as 1922. They were agreed to then by the various bodies named in the letter when it was understood that the Geneva Convention was going to be ratified and that so far as interior work was concerned the use of lead paint would be prohibited. The Act did not receive the Royal Assent until Dec. 15th, and this circular was sent out on Dec. 31st. No conferences were held between those two dates so far as he knew. In the second place the Home Office letter did not in the least make it plain that the Regulations were nearly all drafted for external painting. Certain additional Regulations were issued about which, as far as he knew, there had never been any discussion or conference. The National Operative Painters' Society had made various objections to the Regulations and had pressed for various amendments. The Regulations would be of very little use in stopping lead poisoning. In France lead paint was hardly used at all now; zinc paints were used instead. Zinc could be used for interior work because that work was not affected by climate. There was no reason to suppose that other substitutes as well as zinc could not be found for lead paint—substitutes not harmful to health. He urged most strongly that the Government should make it clear that they would before long introduce legislation prohibiting the use of lead paint for interior work. If things could work out in that way then the resignation of Sir Thomas Legge, though the sacrifice had been great, would not have been in vain.

Viscount BURNHAM said he much regretted that Lord Arnold had thought fit to make a speech of such vitriolic violence on one of the most vexed and difficult problems of industrial policy in international affairs. The only reason why he (Lord Burnham) interposed in the debate was, because he presided over the International Labour Conference of 1921 at Geneva, and as chairman of the drafting committee he was, to some extent, responsible for the Draft Convention on Lead Paint. Personally he regretted that His Majesty's Government had not been able to recommend Parliament to ratify that convention. On the other hand, listening to the somewhat uninformed arguments that had been addressed to the House their lordships might be led to imagine that this was a question of breach of faith without regard to the health and welfare of the workers in the trade which used white lead in interior painting or to the general opinion of the civilised world. The facts were very different. The Conference sat for some six weeks in 1921, and of all the questions submitted to it there was none which provoked so much controversy as the use of white lead in painting. It was not, as Lord Arnold led their lordships to believe, a matter of humanity against callousness in regard to human health and welfare; on the contrary, it was a great struggle of trade interests in which the arguments were very powerful on both sides, and as the result of which a compromise was adopted entirely owing to the persuasiveness and the ability of Sir Thomas Legge. It was a fight between the lead-producing and lead-using countries, and the zinc-producing and zinc-using countries. The Commonwealth of Australia, for instance, was unanimously against any such Convention. Germany ranged itself on the same side as Australia, while France and Belgium being zinc-producing and zinc-using countries, saw an advantage, not only from the hygienic but also from the commercial point of view in the adoption of such a Convention. Three committees were appointed to consider the matter—a commercial, a scientific, and a hygienic committee. They had experts of the greatest authority sitting on them. He recollected that there was one who was paid £5,000 for coming to Geneva, but he was not paid in the least from any reason of public health, but because the vital interests of a great many countries, which were members of the League of Nations, were concerned, and especially those of Australia where lead constituted one-third of the whole mineral production. It was almost certain, at last, that no agreement could be reached, and he broke all the rules of procedure in order to allow Sir Thomas Legge to move, almost as a desperate hope, the resolution that was finally embodied in the Draft Convention which had never been brought to the notice of Parliament. On the other hand, many of those who favoured the Convention believe that half measures, though not wholly effective, might do a great deal to stop the evil of which complaint was made. In 1921 the number of deaths arising from lead poisoning in the whole of the countries represented amounted to 400—a very serious, but not an enormous figure. They thought therefore that it was possible that in six years such scientific discoveries and such applications of those discoveries might be made as would not put this country and other countries using lead at a disadvantage compared with the zinc countries. The building trades were altogether opposed to any such Draft Convention. It was only when a Draft Convention had been ratified by a national parliament of any country that was a party to the League of Nations, that it became a matter of honourable obligation. There was therefore no question of dishonour in the decision of the Government not to ratify the Convention. In any case, to make partizan capital out of the resignation of Sir Thomas Legge was a very monstrous abuse. Nobody who knew him and had seen anything of his work, over a long period of years, could feel anything but the highest respect for him, and no doubt he was heart and soul in favour of this Convention. It was his work, to a large extent. Had he (Lord Burnham) had any say in the matter, either at Geneva or at home, he would have been in favour of ratifying the Convention. On the other hand if it was only postponed for a little time for further experiment and for the concurrence and co-operation of the other nations which were involved, he could not think that much harm had been done.

Viscount HALDANE said that he thought that the attitude of His Majesty's Government towards this question was a most dubious one, and that Lord Arnold had been well advised in bringing it before their lordships that day.

Lord DESBOROUGH, replying on behalf of the Government to Lord Arnold's motion, said he would like to join with those who had already spoken in expressing the appreciation of the Home Office, of employers of labour, and of employees, of the inestimable services rendered by Sir Thomas Legge over a very long period. The Home Office heard with very great regret that he considered it necessary to resign on account of a difference of opinion as to the proper method of dealing with this very important question of lead poisoning. There was no doubt that he and the Government had a very serious difference on that point, but his resignation in any case could not have been very long postponed. It was none the less to be regretted, for if all distinguished civil servants thought it necessary to resign because they happened to disagree with the head of a Department or the head of the Government the civil service on which the good government of this country so largely depended would soon find itself in the slough of despond. In these conventions nothing whatever was signed by the delegates; therefore, there was no question of going back on any point of honour. They had not got to the point when they were governed by Geneva or even by Moscow. The Government, since the passing of the Act of last year, had had a great many conferences with all those interested in order to draw up the best possible regulations. They were very carefully going into the question of the protection of people who used lead paint by, for instance, prohibiting the use of any lead paint in the form of spray and by prohibiting dry rubbing down and scraping. Those Regulations were in hand and he thought they would be shortly issued. He hoped that those who wished to put a stop to this admitted evil of lead poisoning would give every assistance to the Government in order that the greatest security might be given to those who engaged in this admittedly dangerous occupation.

Lord ARNOLD, who said that no attempt had been made to reply to the contentions he had advanced, withdrew his motion.

THURSDAY, FEB. 24TH.

LUNACY AND MENTAL DISORDER.

Earl RUSSELL called attention to the report of the Royal Commission on Lunacy and Mental Disorder and asked whether it was proposed to introduce legislation on the subject. The primary consideration of the public in the treatment of those who had diseased minds was not cure but detention, the protection of society from people who were

dangerous, and that unfortunate idea of detention had far too long run throughout the whole system. There was a popular misconception, which existed very largely to-day, that the majority of lunatics were violent and dangerous, that they had homicidal or suicidal tendencies, and that if they were left at large they would immediately run amok. That was singularly untrue to-day. It was absolutely necessary if they were to deal with this serious question in the light of modern medical knowledge and treatment that they should get out of their minds the idea that lunatics as a class were violent and dangerous people for whom the primary treatment was detention. They should be treated for their mental ailment on medical lines exactly as other people were treated for their bodily ailments. There was the important difference, of course, that those of sound mind were able to coöperate as a general rule with those who were trying to benefit them; but even that was not always true in cases of delirium. The difficulty in regard to persons of unsound mind was that the vast majority were satisfied that they required no treatment at all and that any attempt to treat them or confine them was an outrage. It was very important that they should not only remove from the minds of the public the impression of which he had spoken, but also that they should remove this other impression from the minds of the patients and in the modern method of treatment he thought a good deal had been accomplished in that direction.

It was about 25 years since he was actively occupied in inspecting asylums and since that time there had been a most marvellous development. The old apparatus of locks, bars, and prison-like surroundings had very largely gone and the amount of freedom which existed in the modern asylum would have been unthinkable a quarter of a century ago. There was one institution—true, it was a private institution, and not rate-aided—where something like 40 per cent.—certain 30 per cent.—of the patients were allowed to leave the institution on parole and go freely into the town, deal with the shops and associate with the townspeople. It was true of a great many institutions that certainly less than 50 per cent. of the patients were kept actually under lock and key. An important class of mental patients which had helped to raise misapprehension in the public mind were the paranoiacs, persons with a fixed delusion from which they could not escape. In all other respects such people might be sane, logical, and reasonable human beings. Here came in a very difficult question—namely, the definition of insanity. He would not attempt himself, and he thought that none of those who sat on the Commission, in spite of the assistance medical and other which was given them, would feel competent to write a treatise on the definition of insanity. The standard that the law laid down, however, was a more possible one to arrive at. The legal standard was one of conduct. Suppose a paranoiac had a delusion that the earth was flat and nothing could cure him from that delusion; that delusion was perfectly harmless, and there was no reason why he should be confined. Another delusion, by no means infrequent in women, was that some distinguished public man was their lover or their husband and that they were being forcibly and wrongfully kept away from him by the intrigues of other people. So long as that delusion did not lead to any action it was not for the law to interfere, not even though perhaps the victim was pursued with letters. But if it led to the action of camping on his doorstep, ringing his front door bell, hampering him in his public work, then the interests of the sane had to prevail and it became necessary that the person should be in some way restrained. It was because of this class of paranoiacs that the cry was sometimes raised that lunatics were wrongfully detained. No person seeing lunatics of this class detained in an asylum would be able to ascertain that they were in any way affected. They would think, and possibly in some cases they would report, that a perfectly sane man was being wrongfully detained. The Royal Commission made the most special inquiries into all allegations of wrongful detention and they were not able to trace in the whole of the asylums of this country a single case in which they could say that a man was wrongfully detained. That was stated in the Report, and it ought to reassure the public, but he was afraid that the kind of public that raised these allegations against the treatment of lunatics and the conduct of asylums was sometimes not susceptible to the argument of facts.

There was also the question of wrongful certification, a process which had attracted great attention. Certification was hedged round with precautions that ought to operate successfully, and again he was glad to say that they did not come across any case in which they could say that a man had been wrongfully certified. It would not be honest to say that there were not cases in which a business which ought to be regarded as a very serious and responsible one was sometimes a little too much of a routine; but there was no case of wrongful certification. There were a great many cases in which there was no sort of doubt about certification in view of the doctor's report. But there always must be border-line cases where the conduct had been abnormal, and where on the doctor's advice the certifying magistrate must be told that it was likely that the conduct would remain abnormal or become more abnormal. On the contrary, the conduct of the patient might become better and it might be said that the patient had been certified unnecessarily. There was a curious thing about certification, and about the early stages of this disease, that as a general rule the most violent, the most obstreperous and most obviously lunatic of the persons to be certified were generally the persons soonest to be cured and discharged. These were the people of whom doctors had hope. The well-behaved lunatic with one obsession was a man in whose case hope was generally absent, and in such instances the fixed delusion was almost always associated with an idea of persecution. In such a case, the idea of persecution grew until the patient developed a desire not merely to break plate-glass windows, but a homicidal tendency towards the person he believed to be his persecutor, and it therefore became impossible ever to let him loose on society. In view of the large number of patients whom it was possible to discharge within a few weeks, and very often within a few days of certification, the Commission were moved to consider whether some provisional treatment could not be found by which these cases could be dealt with without actual certification. Besides the stigma attaching to a person who has been certified as a madman, there was also the stigma of the Poor-law. As the law now stood, practically every person who was dealt with in a rate-aided institution—and that comprised almost the entire body of certified lunatics in the country—was technically a pauper lunatic. In most cases also certification proceeded through the workhouse, or if not through the workhouse, at least in connection with the relieving officer, who was a Poor-law official. Their lordships would see the difficulties that had to be faced in connection with provisional treatment. If there was to be an incomplete and provisional stage, was it to be on the doctor's certificate alone, or, as in the present case, on a doctor's certificate backed up by the order of the justices? The power of restraint was absolutely necessary, but a considerable portion of the recommendations of the Commission was devoted to a system of provisional treatment and a sort of quasi-certification, which would not be called certification, extending say for six months. All the evidence showed that the majority of those certified would be discharged before the expiration of the period, and would be able to say that they had never been certified lunatics. That was a matter to which the Commission attached a good deal of importance.

There was also the very important question of classification at the early stages. It was obviously desirable that earlier classification of persons suffering from mental disorder should take place. But this was, to a large extent, a question of the amount of money they were going to spend. Closer classification meant more medical officers, more attendants, smaller wards, and in many cases new buildings. All that the Commission had been able to do was to lay the considerations before Parliament in their report, and to point out that the adoption of those recommendations would give a return, not only in actual dividends of the smaller number of lunatics to be maintained at the public expense, but in the quicker return to health of the citizens of the country. He thought that it was undoubtedly the case that in most of the rate-aided asylums at this moment it would be better to have a definite increase in the number of medical officers and a definite increase in the number of attendants. Wards were too large and individual attention was too difficult. But here he did not wish their lordships to be misled. If they took the average asylum, say for 1000 cases, unfortunately there was a very large percentage of that population for which medical treatment was no use. There was the hopeless cases, the advanced cases of general paralysis of the insane, the ordinary senile dements, and so on. That class did not want an increase in medical attendants. There were other classes in perfectly good physical health, such as paranoiacs, in which after a certain stage they ceased to have very much hope. But at the same time constant watchfulness and care and constant individual observation of those who they had any hope of preparing for discharge was the best and only way of getting maximum discharges from asylums. It was very early brought home to the Commission that the chief pride of the superintendent of an asylum was not the number of inmates that he managed to keep, but the number that he managed to set free; that was what every doctor aimed at. The advances which had been made in the last 25 years had not been due to the Legislature, or even to the excellent work of the county councils who controlled these institutions, but primarily to the initiative of the medical men themselves, who were constantly seeking to deal as best they could with these unfortunate cases. There was no drug that would cure it, nor any specific treatment; they could only put the patient in the best position to fight the disease himself. He put this point to one of the most distinguished doctors who came before the Commission, and he admitted that that was practically the position.

The Commission believed that the adoption of their recommendations might do a great deal to lessen the asylum population, because there were certain classes that could be cared for with less expensive treatment and less medical supervision and under such a system they thought there would be quicker discharges and also it might be possible to arrange to relieve asylums of the numerous cases where the patient could live outside the asylum with some friend or relative.

He hoped that the Ministry of Health would consider the extent to which in any provisional treatment it was necessary to invoke the justices. The justice was invoked because he was the representative of the public, and in consequence of the old and utterly fallacious idea that the doctor as an enemy of the human race was trying wrongfully to put an innocent man in prison. But what could the poor justice do? He could only satisfy himself so far as he could by conversation with the doctor. In some cases by actually seeing the man he could satisfy himself that it was an obvious case. He did not deny that it was a safeguard, but one which in fact was not required, at any rate, in 99 cases out of 100. Whether it was necessary to keep the justice for the hundredth case, even in provisional treatment, he did not know, but he would suggest that an infinitely better safeguard than the intervention of any justice existed at the present time—namely, that the reception in an asylum of any certified lunatic had to be reported at once to the Board of Control, who had all the papers connected with the matter. Another point to which he would call their lordships attention was the present rather curious position of what were called licensed houses, which were generally known as private asylums. They were for private patients who could afford to pay as opposed to pauper lunatics, and at present the procedure for certification was rather different, and in some cases they had, perhaps, a little less protection. There was a very natural and proper feeling on the part of the public that there was a possibility of danger in a place that was run by a proprietor for his own profit, and it was, of course, perfectly obvious that his duty and his interest might conflict. This was a legitimate feeling, but he did not think that it had any foundation in fact. But it seemed to him that the way to deal with that fear was not the way in which Parliament dealt with it in 1890. He supposed that the hope of Parliament in 1890 was that this vested interest would be gradually extinguished without compensation, but the results hoped for had not been achieved. There were fewer licensed houses now than in 1890, but by no means so many fewer as to suggest that the process of extinction would take place within a reasonable time. Parliament, when it legislated next time, must make up its mind whether the licensed house for mental patients was fit to exist or not. If it was not fit to exist, Parliament must abolish it. If it was fit, he thought that the Report of the Commission suggested that there should be what he called "free trade" in licensed houses; that was to say, subject always to the approval of the Board of Control, it should be possible to set up new licensed houses and the limitation on their creation should be abolished. One advantageous effect would be that geographically they would be far better distributed than at present. If, on the other hand, they were going to abolish the licensed house, it meant that rich people, when mentally afflicted, were not to be allowed to be treated where they chose. They could not force such patients into the rate-aided institutions which accommodated pauper lunatics. They would have to build public institutions out of public money which were not really needed. Again, was a county council to provide accommodation at varying prices to suit the means of their paying patients? But if the accommodation was standardised it would be very much resented by the class affected.

There was also the question of the Board of Control itself. At the present time the Board of Control was very much understaffed. It was urgent that they should have its members increased and have more people to do inspection work. Even if the Government felt unable to do anything else with regard to the Report of the Royal Commission, he thought that they would have helped the matter if they increased the numbers of the Board of Control and by the experience gained help to shape the measure which they would, he hoped, at some time introduce. He wished to ask the Government what hope there was of legislation being introduced and at what time? As the big subject of the Poor-law was not to be dealt with this session, was this not a good opportunity, at any rate, to introduce, perhaps, into their lordships' House a Bill dealing with this subject and carrying out such recommendations of the Royal Commission as commended themselves to the Government so that the public might have time to be instructed and to learn? If they were told that no effective legislation could be passed this year, they might, at least, be informed that towards the end of the session there might be presented in that House, if it was only for a first reading, some Bill embodying the conclusions at which the departments had arrived.

Lord SANDHURST, speaking as one of the Lord Chancellor's visitors, said that the question of the necessity for early treatment of mental patients was almost a closed book so far as argument was concerned. He would like to draw attention to the subject of voluntary boarders in registered hospitals. Something like a third of the patients in some of them were voluntary boarders. In the licensed houses there were also a large number of voluntary boarders. In Scotland, owing partly to a somewhat different interpretation of the law the number of voluntary boarders was even larger than in England, but a rate-aided patient could not be a voluntary boarder. This was a case of one law for the rich and another for the poor and urgently called for reform. The Lord Chancellor attended in 1923 a meeting of the Mental After-Care Association, and at that meeting he foreshadowed the Mental Treatment Bill which was introduced in that year but failed to pass. The Mental After-Care Association was one of the most deserving charities in the country, but the sort of care and observation which was very necessary should not be left to any charitable institution These two reforms urgently called for the sympathetic consideration of the Government. There was another matter to which he wished to refer—namely the very natural hesitation which the medical profession felt in certifying patients. Recent cases had alarmed them and they felt that even when acting in the best of faith they were not adequately protected against subsequent legislation. Cases were found in which it was clear that for the benefit of the patient, as well as of the public, it was desirable that the patient should be placed under supervision, yet it was very difficult to find medical men who were willing to certify. The report suggested that the *onus* of proof in regard to good faith and reasonable care should be shifted and that it should be for the complaining patient to show that the medical man was actuated by bad faith and did not use reasonable care. That would be a good thing as far as it went, but it was hardly enough to inspire confidence in the medical profession. At the same time he felt there was a great difficulty in going any further.

Viscount GAGE, replying on behalf of the Ministry of Health, said he did not think the Ministry would disagree, at least in principle, with the majority of Lord Russell's remarks. Although many of the results which the Commission set out to attain were in themselves universally admitted to be desirable, the steps that it would be necessary to take to bring those aims and objects into being might give rise to considerable controversy on grounds quite apart from the purely medical and scientific aspects involved. For instance, the prolonged litigation taking place in the Harnett case showed how far the legal status of the medical profession was involved in the law as it stood at present. It also showed with what care it would be necessary to consider alterations of any kind in order to reduce to a minimum the possibility of similar cases arising out of the obscurity of the law. The Government felt there was need for the very closest consideration of all the questions affecting this matter in all their aspects, scientific, legal, financial, and administrative, before they decided on their policy or enunciated it. They thought that they were entitled to a longer period than had elapsed since the issue of the Commission's Report for the necessary investigations. Until the Government's proposals for the reform of the Poor-law were in slightly more crystallised form it would be obviously almost useless to discuss the administrative side of the Commission's Report, which formed a considerable proportion of that report. He could assure Lord Russell that the Minister of Health considered that there could be no dispute in regard to several of the principles which he mentioned, as, for instance, the desirability of treating the mentally afflicted at the earliest opportunity after the disability had become manifest, and also the desirability of removing the Poor-law stigma. He could assure the noble earl that the Government regarded this report as a most valuable document and that they would not fail to adopt such of its recommendations as it might be found possible to do when the investigations of the Government were completed, and when they were in a better position to consider the relations of the report to their Poor-law reform proposals. He would, of course, draw the attention of the Minister of Health to the suggestions which his noble friend had made.

HOUSE OF COMMONS.

WEDNESDAY, FEB. 23RD.

Medical Officers at Naval Recruiting Centres.

Sir BERTRAM FALLE asked the First Lord of the Admiralty the cost of maintaining medical officers at naval recruiting centres; and would he consider whether a saving could be effected by arranging for medical officers from naval depôts to visit these centres once or twice weekly for the purpose of medically examining candidates for entry into His Majesty's Navy.—Lieut.-Colonel HEADLAM replied: There is a retired naval medical officer in receipt of a salary of £300

per annum at each of the six provincial headquarter recruiting stations. At the London headquarter recruiting station an active service surgeon commander is employed and receives the pay of his rank. The travelling expenses, including subsistence, of medical officers travelling from the home ports twice weekly to Newcastle, Birmingham, Liverpool, Bristol, Manchester, and Southampton would be far greater than the salaries paid. Moreover, the attendance of a medical officer only twice a week at a headquarter station would not meet requirements, as intending recruits must be examined when putting in an appearance, and this necessitates the attendance of a medical officer the whole of each working day.

Physical and Medical Disability in Naval Recruits.

Mr. HORE-BELISHA asked the First Lord of the Admiralty how many applicants were accepted in the year 1926 for His Majesty's Navy, and how many were rejected on account of some physical or medical disability.—Lieut.-Colonel HEADLAM replied: The number of applicants accepted in the year 1926 for the Royal Navy was 6625, and for the Royal Marines 1063, a total of 7688. Separate totals of numbers rejected on account of some physical or medical disability cannot be given, but the total number of candidates for entry in the Royal Navy and Royal Marines rejected on these accounts was 5427. This number does not include men and boys rejected by recruiters—i.e., those not sent forward for final medical examination, of which there is no record.

Bacteriological Laboratory in Fiji.

Dr. SHIELS asked the Secretary of State for the Colonies whether he had considered the provision of a bacteriological laboratory and a qualified bacteriologist for the hospital at Suva, Fiji, in view of its importance as a medical centre for a wide tropical area.—Mr. ORMSBY GORE (Under Secretary for the Colonies) replied: These suggestions have not previously been made to me, but I will communicate with the Governor.

Accidents in the Air Force.

Mr. DAY asked the Secretary of State for Air the number of Air Force personnel killed and injured in flying accidents since Jan. 1st last to the last convenient date, together with the figures for the corresponding period of last year.—Sir S. HOARE replied: The casualties to Royal Air Force personnel during the period Jan. 1st to Feb. 20th, 1927, were 8 killed and 14 injured; further, one naval officer and one naval rating were killed during this period. The figures for the corresponding period of 1926 were 5 killed and 15 injured. I should add that four of the deaths in 1927 were the result of a single accident.

THURSDAY, FEB. 24TH.

D.C.M.S. and Treatment of Pensioners.

Dr. SHIELS asked the Minister of Pensions if he was aware that in the Edinburgh area there was an increasing number of cases of disabled ex-Service men who were being refused treatment by the D.C.M.S. and were being referred by him to their panel doctors who found them unfit for work and entitled to the National Health Insurance allowances; and would he see that more sympathetic consideration was given to these cases and hospital treatment with allowances given where deterioration had taken place.—Major TRYON replied: It is the duty of the Deputy Commissioner of Medical Services to prescribe whatever form of treatment he may consider necessary in a particular case, and in a case where no specialist treatment is called for, but attention from the general medical practitioner is all that is required, the pensioner is advised to consult the practitioner whose services are available to him under the Health Insurance Acts. I should not be justified in requiring, as the hon. Member suggests in the last part of his question, the provision of hospital treatment in all cases of deterioration, regardless of the medical view as to whether such treatment in a hospital were necessary or not. With regard to the grant of allowances under Article 6 of the Warrant, I would remind the hon. Member that the conditions governing the matter are not identical with those which determine sickness benefits under the National Health Insurance Acts.

Medical Examination of Pensioners.

Dr. SHIELS asked the Minister of Pensions if he had issued instructions that when the condition and circumstances of needy pensioners were being revised they were to be called up for medical examination by the Ministry, or was the certificate of a qualified medical practitioner still accepted as valid evidence.—Major TRYON replied: No general instruction to the effect suggested has been issued. A certificate from the pensioner's own doctor is taken as evidence in support of a claim, but if, as necessarily happens in some cases, this evidence is not sufficient to enable the Ministry to determine the claim, an examination by a medical officer of the Ministry is directed.

Street Processions for Hospital Funds.

Mr. VIANT asked the Home Secretary whether he was aware that the West London Amalgamated Hospital Society had for many years organised processions, and collections had been taken en route for the purpose of helping the hospitals of London, and that by this means considerable sums of money had been obtained by a society of voluntary workers; that the society had been notified that in future collections could only be made at stationary points; and whether, in view of the fact that this new regulation would seriously affect the receipts, he would reconsider the matter.—Sir W. JOYNSON-HICKS replied: Before 1920 collections accompanying moving processions were entirely prohibited. In 1920 the Regulations were amended so as to allow collecting processions in special cases, but experience has shown that these processions are liable to cause so much disturbance and interference with traffic that it was decided to amend the Street Collection Regulations so as to prohibit the practice. I am sorry to have to put any obstacle in the way of collections for good objects, but the London traffic problem is now such that other considerations must be subordinated to traffic considerations.

Education Authorities and Mentally Defective Children.

Mr. ROBERT MORRISON asked the President of the Board of Education how many local education authorities had made complete provision for the number of mentally defective children under their jurisdiction; how many had made partial provision; and how many had not yet made any provision.—Lord EUSTACE PERCY replied: In the case of about 33 local education authorities the provision for the education in special schools of mentally defective children was fairly complete in 1925, the latest period for which returns are available; partial provision was made by some 175 authorities and 110 authorities had made no provision. In addition about 50 authorities, including some of those who had made no special school provision, had arranged for the supervision of mentally defective children in their areas.

Mr. ROBERT MORRISON asked the President of the Board of Education the present estimated number of mentally defective children who might benefit by admission to special schools; how many of these children were at present in special schools; how many were in public elementary schools; how many in other institutions; and how many were not attending any school.—Lord EUSTACE PERCY replied: It is not possible to estimate the number of mentally defective children who might benefit by admission to special schools; but of about 33,000 mentally defective children classed as educable, in England and Wales, in 1925, 15,773 were attending special schools, 12,470 were at public elementary schools, 860 were at other institutions and 3872 were not attending any school. The accommodation in mentally defective schools on March 31st, 1925, was 16,746, and on March 31st, 1926, 17,154.

Poor-law Hospitals and Road Casualties.

Mr. DAY asked the Minister of Health if his attention had been drawn to the increasing practice of admitting road casualties into Poor-law institutions, with the resulting cost of maintenance being thrown upon local funds; and would he consider legislation defining the powers of boards of guardians in respect of the maintenance of patients admitted to such Poor-law institutions after road accidents.—Mr. CHAMBERLAIN replied: I have received certain representations on this matter which are now under consideration.

Patients in Mental Hospitals.

Mr. DAY asked the Minister of Health the number of persons in mental hospitals and homes on Jan. 1st, 1927.—Mr. CHAMBERLAIN replied: The number of persons certified in England and Wales under the Lunacy Acts resident in county or borough mental hospitals, registered hospitals, licensed houses, and in single care on Jan. 1st, 1927, was 116,748. There were in addition 796 voluntary boarders. The number of mental defectives resident in institution and under guardianship on the same date was 22,759.

Serum Treatment of Scarlet Fever.

Mr. BENNETT asked the Minister of Health to what extent the serum treatment of scarlet fever and the Schick test and von Behring's method of immunisation against diphtheria were being used in this country by the various local authorities.—Mr. CHAMBERLAIN replied: Exact figures are not available, but the methods mentioned by my hon. friend are being increasingly used throughout the country and with encouraging results. I am advised that the serum treatment of scarlet fever is of value, particularly in severe cases of the disease and in the prevention of its complications. A fair number of local authorities, especially the larger ones, now provide active immunisation against diphtheria for those who wish to avail themselves of it, at child-welfare centres, in schools, in residential institutions, or among the nursing staffs of infectious diseases hospitals.

Financial Position of Approved Societies.

Sir ARCHIBALD SINCLAIR asked the Minister of Health whether he was aware that, owing to the increase in the amount of benefits paid by approved societies to their members during the past year and the decrease in the amount of contributions received from their members on account of the industrial crisis and from the State on account of the operations of Part I. of the Economy (Miscellaneous Provisions) Act, a number of these societies, whose position at the beginning of this year proved to be actuarially sound, were now faced with the prospect of falling into deficiency before the end of the current quinquennial period; and what action, if any, the Government proposed to take to strengthen the financial position of these threatened societies.—Mr. CHAMBERLAIN replied: I am aware of the strain imposed upon certain approved societies by causes connected with the industrial crisis of last year. I cannot, however, accept the hon. Member's suggestion as to the consequences. The valuations are separated by a period of five years, and I should not be warranted in drawing conclusions as to the results of the next valuation by reference only to the conditions prevailing over a few months. In any case, the National Health Insurance Act enables the Central Fund to come to the aid of societies which have fallen into deficiency through no fault of their own, and I am satisfied that no further action by the Government is required. So far as regards the reduction in the State contribution under the Economy (Miscellaneous Provisions) Act, I would refer the hon. and gallant Member to Section 3 of that Act wherein very full provision is made for the protection of societies against the contingency to which he refers.

Position of Local Health Visitors

Mr. GERALD HURST asked the Minister of Health whether any association of nurses was consulted before the issue of the regulations of February, 1925, as to the position of health visitors employed by local authorities; if he was aware of the shortage of candidates under such regulations and the difficulties of nurses in complying therewith; and if he had considered the desirability of revising them.—Mr. CHAMBERLAIN replied: The answer to the first part of the question is in the affirmative. I am aware that there are not yet so many candidates under training for the position of health visitor as is desirable, but my attention has not been called to any particular difficulties in complying with the present regulations. It is not proposed at present to revise the regulations which have been in operation only since April, 1925.

Mental Deficiency Bill.

Sir JOHN MARRIOTT asked the Minister of Health whether it was proposed to reintroduce the Mental Deficiency Bill this session; and, if so, whether it would be introduced before Easter.—Mr. CHAMBERLAIN replied: The Government do not propose to reintroduce the Mental Deficiency Bill. But Mr. B. C. Wood has presented a Bill which I understand will incorporate certain of the provisions of the Government Bill of last session.

War Pensions Expenditure.

Mr. DALTON asked the Chancellor of the Exchequer the total sum paid in war pensions since the conclusion of the armistice.—Mr. R. MCNEILL (Financial Secretary to the Treasury) replied: The total sum expended on war pensions (including medical treatment but excluding administration) from the Armistice to March 31st, 1927, is estimated at £647,000,000.

MONDAY, FEB. 28TH.

The Hours Convention.

The House discussed in Committee the Washington Hours Convention, on a vote of £11,653,564 for the Ministry of Labour. Mr. HAYDAY moved a reduction of £100 and called attention to the failure of the Government to ratify the Convention. Sir A. STEEL-MAITLAND, Minister of Labour, in reply, said that the matter was under the consideration of the Cabinet. There was a wide variation in the interpretation of the Convention and in the practice of the countries that had ratified it. They could not get a convention which would stand the test of practice until they had explored the ground and made it clear that the various countries meant the same thing and were going to carry it out in the same way. He was trying to explore the ground and that was the only way they could get on the path of permanent progress.

Dr. VERNON DAVIES said he had a great deal of sympathy with the Minister of Labour, because he had formed the impression that the right hon. gentleman was sincerely anxious to do all he possibly could towards ratification of the Convention, but that there were certain difficulties in the way. He (Dr. Davies) was a convinced believer in the efficiency and necessity for a 48 hours' week. The Minister might, he suggested, promise to do all that he could to enter into a provisional ratification and that, if, after a certain time, other nations did not ratify, to repeal it. The Government Front Bench showed a great lack of industrial psychology and if they would take a course in that, they would probably learn that the very fact of ratifying the agreement would cause such a tremendous feeling of thankfulness and relief among the working people that there would be peace in industry. Eventually, the amendment was rejected by 199 votes to 108—majority 91.

Indian Medical Service.

Mr. PETHICK-LAWRENCE asked the Under-Secretary for India whether a decision had now been reached as to granting passage concessions to Indian officers who entered the Indian Medical Service by competitive examination in London.—Earl WINTERTON, who replied, referred to an answer which he gave to Mr. Day on Nov. 9th. The Secretary for India expected that details of the scheme recently sanctioned would be announced very shortly.

TUESDAY, MARCH 1ST.

Vaccination Fees.

Mr. GROVES asked the Minister of Health whether the medical officer of health for Mexborough had performed any vaccinations during the recent small-pox outbreak; and, if so, what fee he had received or would receive for such vaccinations.—Mr. CHAMBERLAIN replied as follows: This medical officer of health is also public vaccinator for Mexborough. I have no information as to the number of vaccinations he has performed, but in his capacity of public vaccinator his fee for domiciliary vaccination is 6*s.* per case.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED FEB. 19TH, 1927.

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 346 (last week 479); scarlet fever, 1320; diphtheria, 955; enteric fever, 24; pneumonia, 3523 (last week 3192); puerperal fever, 30; puerperal pyrexia, 118; cerebro-spinal fever, 15; acute poliomyelitis, 11; acute polio-encephalitis, 2; encephalitis lethargica, 39; dysentery, 10; and ophthalmia neonatorum, 111. No case of cholera, plague or typhus fever was notified during the week.

The cases of small-pox were distributed among the same English counties as last week, namely: Cheshire 1, Derbyshire 6, Durham 217, Lancashire 5, Lincolnshire 1, Northumberland 11, Nottinghamshire 4, and Yorkshire 99. In addition, two cases were notified from Wales (from the counties of Monmouth and Glamorgan), and reference to an editorial article on p. 506 will show that the Welsh outbreak has since assumed much larger proportions.

Deaths.—In the aggregate of great towns, including London, there were 2 (0) deaths from enteric fever, 73 (1) from measles, 4 (1) from scarlet fever, 110 (26) from whooping-cough, 29 (7) from diphtheria, 51 (12) from diarrhœa and enteritis under two years, and 987 (128) from influenza. The figures in parentheses are those for London itself. The influenzal deaths for the last six weeks have thus been 326, 470, 725, 818, 759, and 990, whilst 1023 is the number notified for the week ended Feb. 26th. The figure for London however, has fallen to 81.

ROYAL MEDICAL BENEVOLENT FUND.—At the last meeting of the committee 34 cases were considered and £440 was voted to 29 applicants. The following is a summary of some of the cases relieved:—

Widow, aged 76, of L.R.C.S. Edin. who died in 1893. Only income old age pension. Lives with two sons; the younger is unemployed and the elder finds it a hard struggle to keep three persons. Voted £26 in 12 monthly instalments.

Widow, aged 63, of L.R.C.P. who died in 1917. Four children, two married. Eldest daughter, aged 38, is a domestic help, and comes home at night; she is only able to give her mother some provisions occasionally. Son getting married; applicant asks for help as his money will cease. Inclusive rent 7*s.* 8*d.* a week. Voted £18 in 12 monthly instalments.

Widow, aged 44, of M.R.C.S. who died in July last from septicæmia after an operation on a patient. Two children, boys; the elder, aged 20, earns £65 per annum, and the younger, aged 8, is applying for an Epsom College Foundation. When late husband's estate is settled estimated income will be about £110 per annum. Voted £20.

Subscriptions may be sent to the Treasurer, Sir Charters Symonds at 11, Chandos-street, Cavendish-square, London, W. 1.

Medical News.

UNIVERSITY OF OXFORD.—At a congregation held on Feb. 19th the following degrees were conferred :—

Doctor of Medicine.—Vincent S. Hodson.

Bachelor of Medicine.—Douglas A. Robertson, Clarence S. Broadbent, and Michael D. Bower.

SOCIETY OF APOTHECARIES OF LONDON.—At recent examinations the following candidates were approved in the undermentioned subjects :—

Surgery.—I. G. Briggs, London Hosp. ; J. D. Evans, St. Mary's Hosp. ; L. J. Lawrie, London Hosp. ; A. W. Marsden, Birmingham ; J. H. Mulvany, King's College Hosp. ; W. D. Neill, London Hosp. ; L. W. Rose, Guy's Hosp. ; R. S. S. Smith, St. Bart.'s Hosp. ; S. le R. Switzer, London Hosp. ; and H. N. Walker, St. Bart.'s Hosp.

Medicine.—L. Ashkenza, Middlesex Hosp. ; B. Best, Liverpool ; I. G. Briggs, London Hosp. ; J. De Rosa, Albany and London Hosp. ; J. A. Fernandez and S. Jenkinson, St. Bart.'s Hosp. ; R. Kahn, London Hosp. ; J. H. Mulvany, King's College Hosp. ; H. Rundstrom, St. George's Hosp. ; and H. N. Walker, St. Bart.'s Hosp.

Forensic Medicine.—V. P. Bamford and I. G. Briggs, London Hosp. ; J. De Rosa, Albany and London Hosp. ; R. Kahn, London Hosp. ; J. H. Mulvany, King's College Hosp. ; and S. Wray, Manchester.

Midwifery.—I. G. Briggs, London Hosp. ; J. D. Evans, St. Mary's Hosp. ; K. E. Gallagher, Manchester ; R. Kahn, London Hosp. ; J. H. Mulvany, King's College Hosp. ; S. Slotar, Guy's Hosp. ; H. N. Walker and R. W. Wood, St. Bart.'s Hosp. ; and S. Wray, Manchester.

The Diploma of the Society has been granted to the following candidates entitling them to practise medicine, surgery, and midwifery : B. Best, I. G. Briggs, J. H. Mulvany, L. W. Rose, H. Rundstrom, R. S. S. Smith, and S. Wray.

UNIVERSITY OF LONDON.—At a meeting of the Senate held on Feb. 23rd, the Vice-Chancellor, Sir William Beveridge, in the chair, the Cancer Hospital (Free) was admitted as a School of the University for a period of three years.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—A course of six Hunterian lectures on the Peoples of the East : Past and Present, is being given by Sir Arthur Keith, F.R.S., at the College. The remaining lectures will be delivered at 5 P.M. to-day, March 4th, and on March 7th, 9th, 11th, and 14th at the same hour.

SOCIETY OF MEMBERS OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At a council meeting of this Society the following resolution has been passed unanimously : "The Society of Members deeply deplores the great loss which it has sustained by the death of Mr. C. Edward Wallis, L.D.S., M.R.C.S. Eng., and desires to place on record its appreciation of his untiring zeal and self-sacrificing service on behalf of the Society and of all the members of the College."

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.—A meeting will be held in the lecture theatre of the Society's house, 17, Bloomsbury-square, London, W.C. 1, on Tuesday, March 8th, at 8 P.M., when a lecture will be delivered on the Microscope and its Use in Research, by Mr. J. E. Barnard, F.R.S. Medical friends of members and student-associates will be welcome.

INDUSTRIAL HEALTH EDUCATION SOCIETY.—This organisation, which came into being last year, and has for its purpose the propagation among the British industrial population of information useful for the maintenance of health, held its first annual meeting in the Gould Hall, Edinburgh, yesterday afternoon. Sir William Haldane presided over a representative gathering, and the following appointments were made to the Council :—Chairman, Sir William Haldane, (Edinburgh) ; Vice-Chairman, Dr. Charles Porter (M.O.H. Marylebone, W.) ; hon. secretary, Dr. G. Clark Trotter, (M.O.H. Islington, N.) ; hon. treasurers, Messrs. Greenhill and Clapperton (Edinburgh) ; and general secretary, Mr. J. Mackenzie, 89, Mibrae-road, Glasgow.

INQUESTS IN LONDON.—Last year 6934 deaths were reported to London coroners as against 6758 in 1925, and inquests were held in 5143 cases, in 80 per cent. of which post-mortem examinations were necessary. The total number of suicides was 600, as against 515 in 1925, and in two cases a verdict of felo-de-se was returned. Excessive drinking accounted for 28 deaths, and 18 were described as the result of want and exposure. Those recorded as due to lack of attention at birth increased from 36 to 57. In all 1761 people met their death by accident, as against 1607 in 1924. A verdict of death from natural causes was reported in 2447 cases, and there were 19 verdicts of "Causes of death unknown." The total cost to the London County Council of the inquests held in 1926 was £25,732.

FIFTY YEARS A HOSPITAL SURGEON.—Dr. Thomas Porter Greenwood, of Stamford, Lincolnshire, has completed 50 years as honorary surgeon to the Stamford Infirmary.

Dr. K. B. Allan (senior medical officer) has been appointed by the King a Member of the Executive Council of the Gambia and an Official Member of the Legislative Council of that colony.

CHADWICK LECTURE.—On Thursday, March 10th, at 5.15 P.M., at the Barnes Hall of the Royal Society of Medicine, 1, Wimpole-street, London, W., Sir James Crichton-Browne will take the chair at the second of two Chadwick lectures by Dr. Carey F. Coombs, on Rheumatism : its Causes and Prevention. Information may be had from Mrs. Aubrey Richardson, at the offices of the Chadwick Trust, 13, Great George-street, Westminster.

MEMORIAL TO SIR PATRICK MANSON.—As we have already announced, Mr. Neville Chamberlain, Minister of Health, is to unveil a memorial tablet to the late Sir Patrick Manson in the Mansion Ward of the Royal Albert Docks Hospital on Tuesday, March 15th, at 3.30 P.M. A train which leaves Fenchurch-street Station at 2.20 and arrives at Connaught-road at 2.41 P.M. will be found convenient.

ST. BARTHOLOMEW'S HOSPITAL : RETIREMENT OF THE MATRON.—At an "At Home" given by Lord Stanmore, the treasurer, last week, presentations were made to Miss McIntosh, the matron, who is retiring after more than 16 years' service. She was presented with an address and a cheque from the governors ; the Guild of the hospital and the nurses gave her a diamond ring and other souvenirs.

LONDON FEVER HOSPITAL.—It was stated at the annual meeting last week that there was a large increase in the number of cases of measles in 1926, 208 patients being treated as compared with 39 in 1925. Of the 962 patients treated during the year 203 were suffering from pulmonary or other forms of tuberculosis.

CAMBRIDGE GRADUATES' MEDICAL CLUB.—The annual dinner of this club was held at the Langham Hotel, London, on Tuesday evening last, March 1st, Sir Humphry Rolleston, President of the club, in the chair. The occasion was made highly successful by the after-dinner performances of the St. Thomas's Hospital troupe who sang, alone or in combination, played the ukulele, and improvised orations of an amusing character. Other members of the club added to the programme by recitations in metre, descriptive of amazing pathological occurrences.

BIRMINGHAM'S CRIPPLES.—An endeavour is being made to raise £50,000 for the extension of orthopædic work in Birmingham. Some two years ago the Royal Orthopædic Hospital in that city and the Birmingham Cripples' Union were amalgamated, and it is now the third largest curative institution in Birmingham. Yet there are still 500 cripples, more than half of them children, awaiting treatment. It is hoped to transfer all the bed cases to an open-air suburban hospital, which would give 40 more beds, and bring up the total number to 300.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—On Thursday, March 10th, at 5 P.M., Mr. R. H. Jocelyn Swan will lecture at the rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square, on Suppression and Retention of Urine. On Tuesday, March 8th, at 4.30 P.M., at the St. Mark's Hospital, City-road, Mr. W. B. Gabriel will give a demonstration in clinical surgery. Both lecture and demonstration are open to members of the medical profession without fee. The Brompton Hospital will hold a special week's course in diseases of the chest, starting on Monday, March 7th ; there will be morning and afternoon sessions (fee £3 3*s.*). A special two weeks' course will be given at the Royal National Orthopædic Hospital from March 21st to April 2nd. The course will occupy the whole of each day (fee £2 2*s.*). From March 14th to 26th the Chelsea Hospital for Women will hold a special course in gynæcology, occupying the mornings and/or afternoons (fee £5 5*s.*). A late afternoon course in general medicine and surgery, primarily intended for general practitioners, will be held at the London Temperance Hospital from March 21st to April 2nd, lasting an hour and a half daily (fee £1 1*s.*). The Queen's Hospital for Children, Bethnal Green, will give a course in diseases of children from March 28th to April 9th from 10 A.M. to 4 or 5.30 P.M. ; the wards and out-patient departments will be open continuously throughout the course (fee £3 3*s.*). In the afternoons, for two weeks from March 28th, the Royal Eye Hospital will give a series of demonstrations on the Diagnosis and Treatment of Diseases of the Eye (fee £1 1*s.*). Copies of all syllabuses and of the *Post-Graduate Medical Journal* are obtainable from the Secretary of the Fellowship at 1, Wimpole-street, London, W. 1.

DENTAL CARE OF LIVERPOOL SCHOOL-CHILDREN.—The Liverpool Education Committee has decided to appoint two whole-time dental officers for the city at salaries of £500 per annum rising to £600 instead of the present part-time service.

WALSALL MATERNITY HOME.—Hitherto the County Borough of Walsall, with a population of about 100,000, has lacked a maternity home. The corporation have now purchased Bloxwich Manor House, which is within the borough, and it is to be adapted for that purpose.

GIFT TO UNIVERSITY OF EDINBURGH.—Mr. Thomas Cowan, a retired shipowner of Leith, has given £15,000, in addition to £10,000 previously given, to enable the University to provide a residential house for male students. Houses will be purchased in George-square and adapted to accommodate about 125 students.

SHORTAGE OF RADIUM IN LIVERPOOL.—At the annual meeting of the Liverpool Hospital for Cancer and Skin Diseases a proposal to provide Liverpool with a supply of radium for cancer treatment at a cost of £30,000 was put forward. It was stated that the hospital at present possessed only £1000 worth of radium; indeed, the city had so little radium that patients needing this form of treatment have to be taken to the Christie Hospital in Manchester.

REBUILDING SCARBOROUGH HOSPITAL. — The governors of Scarborough Hospital and Dispensary (50 beds) have abandoned their intention of enlarging the building to provide double the number of beds. They find that the present form of the hospital and the present site cannot adequately meet modern needs and have therefore decided to build an entirely new hospital on a fresh site.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY, Burlington House, Piccadilly, W.

THURSDAY, March 10th.—4.30 P.M., *Papers to be read*: A. Levin and J. Wyman: The Viscous Elastic Properties of Muscle (communicated by Prof. A. V. Hill, F.R.S.). Alexander Hynd: The Action of Glucosone on Normal Animals (Mice) and its possible Significance in Metabolism (communicated by Sir James Irvine, F.R.S.). F. W. R. Brambell and A. S. Parkes: Changes in the Ovary of the Mouse following Exposure to X Rays (communicated by Prof. J. P. Hill, F.R.S.). A. S. Parkes: Una Fielding, and F. W. R. Brambell: Ovarian Regeneration in the Mouse, after complete Double Ovariotomy (communicated by Prof. J. P. Hill, F.R.S.). A. Walton: The Relation between "Density" of Sperm-Suspension and Fertility as determined by Artificial Insemination of Rabbits (communicated by Dr. F. H. A. Marshall, F.R.S.).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY, March 8th.—5 P.M., THERAPEUTICS AND PHARMACOLOGY. Papers: Dr. A. F. Hurst and Dr. F. A. Knott: The Treatment of Biliary Infection with Hexamine. Dr. J. W. Trevan and Miss H. W. Bainbridge: The Standardisation of Cod-Liver Oil.

THURSDAY.—8 P.M., NEUROLOGY. Clinical Meeting at the National Hospital, Queen-square, W.C.

FRIDAY.—5.30 P.M. (Cases at 5 P.M.) CLINICAL. Cases: Dr. A. A. Osman: (1) A Case of Chronic Renal Disease with Bony Changes; (2) A Case for Diagnosis. Mr. E. C. Hughes: Three Cases of Arthroplasty of the Temporo-Mandibular Joint. Dr. Burrell: (1) Neoplasm of Lung; (2) Pulmonary Tuberculosis Treated with Sanocrysin. Mr. F. D. Saner: A Case of Gastro-Enterostomy for Discussion. Dr. C. P. Symonds: Charcot's Arthropathy as Initial Symptom in Syringomyelia. Mr. Lambrinudi: Two Cases of Madelung's Deformity. Mr. Shorney Webb: Paget's Disease in a Woman. Dr. Cassidy: A Case of Achalazia. Cases will also be shown by Mr. Tanner, Dr. Worster-Drought, and Mr. Mortimer Woolf. 5 P.M., OPHTHALMOLOGY. Clinical Meeting at St. Bartholomew's Hospital, E.C., in the Ophthalmic Out-Patient Department.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W.

TUESDAY, March 8th.—5 P.M., Dr. F. Dearden: Health Hazards in the Cotton Industry. (Last Milroy Lecture.)

THURSDAY.—5 P.M., Prof. F. R. Fraser: Cardiac Dyspnœa. (First Goulstonian Lecture.)

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, March 7th, to SATURDAY, March 12th.—FELLOWSHIP OF MEDICINE, special lecture at the Medical Society, 11, Chandos-street, W., at 5 P.M., on Thurs. Mr. R. H. Jocelyn Swan: Suppression and Retention of Urine. Open to all members of the medical profession without fee.—ST. MARK'S HOSPITAL, City-road, E.C., special clinical surgery demonstration on Tues., at 4.30 P.M., by Mr. W. B. Gabriel. Open to all members of the medical profession without fee.—HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W. Special course in Diseases of the Chest, for one week only. Demonstrations and lecture-demonstrations daily mornings and afternoons.—LONDON LOCK HOSPITAL, Dean-street, W. Special course in Venereal Diseases. Clinical work daily and special lectures.—NATIONAL HOSPITAL, Queen-square, W.C. Special course in Neurology: instruction daily in the Out-Patient Department and special lectures and demonstrations. Further information from the Secretary.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

MONDAY, March 7th.—10 A.M., Mr. MacDonald: Genito-Urinary Operations. 2 P.M., Mr. Addison: Surgical Wards. 4 P.M., Mr. Addison: Surgery of the Stomach and Duodenum.

TUESDAY.—10 A.M., Medical Registrar: Clinical Methods. 12 noon, Dr. Burrell: Chest Cases. 2 P.M., Mr. Sinclair: Surgical Out-Patients.

WEDNESDAY.—10 A.M., Dr. Owen: Medical Diseases of Children. 2 P.M., Dr. Scott Pinchin: Medical Out-patients. Mr. Donald Armour: Surgical Wards.

THURSDAY.—10 A.M., Dr. Stewart: Neurological Department. 12 noon, Mr. Simmonds. Demonstration of Fractures. 4 P.M., Mr. Vlasto: Throat, Nose and Ear Department.

FRIDAY.—11 A.M., Dr. Pritchard: Modern Methods in Medicine. 2 P.M., Mr. Sinclair: Surgical Out-patients.

SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Mr. Vlasto: Operations on Throat, Nose, and Ear.

Daily.—10 A.M. to 5 P.M., Operations, Medical, Surgical. Special, Out-patient Departments (Saturdays, 10 A.M. to 1 P.M.).

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY, March 7th.—10 A.M., Surgical Clinic. 2 P.M., Medical Cases in the Wards. 2.30 P.M. to 5 P.M., Medical, Surgical, and Gynæcological Clinics. Operations.

TUESDAY.—2.30 P.M. to 5 P.M., Medical, Surgical, Throat, Nose, and Ear Clinics. Operations.

WEDNESDAY.—2.30 P.M. to 5 P.M., Medical, Skin, and Eye Clinics. Operations.

THURSDAY.—11.30 A.M., Dental Clinic. 2.30 P.M. to 5 P.M., Medical, Surgical, and Ear, Nose, and Throat Clinics. Operations.

FRIDAY.—10.30 A.M., Throat, Nose, and Ear Clinics. 2.30 P.M. to 5 P.M., Surgical, Medical, and Children's Diseases Clinics. Operations.

On MONDAY, March 7th, and WEDNESDAY, March 9th, at 2.30 P.M., there will be special demonstrations of Gynæcological and Eye Cases by Mr. Aubrey Goodwin and Mr. N. B. B. Fleming respectively. On FRIDAY, March 11th, at 4.30 P.M., Dr. L. R. Yealland will give a demonstration on Selected Cases of Nerve Diseases.

UNIVERSITY COLLEGE HOSPITAL, Gower-street, W.C.

FRIDAY, March 11th.—4.15 P.M., Dr. Charles Singer: The Hygienic Idea in World History.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.

TUESDAY, March 8th.—5 P.M., Dr. J. E. M. Wigley: Leukæmia Cutis. Mycosis Fungoides.

THURSDAY.—5 P.M., Dr. J. E. M. Wigley: Pemphigus and Allied Eruptions.

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL, Gray's Inn-road, W.C.

FRIDAY, March 11th.—4 P.M., Mr. Archer Ryland: Demonstration of Museum Specimens.

ROYAL NORTHERN HOSPITAL POST-GRADUATE COURSE.

TUESDAY, March 8th.—3.15 P.M., Dr. C. Gouldesborough. Practical Points of Interest in X Ray Work.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY, March 10th.—4 P.M., Dr. E. A. Cockayne: Poliomyelitis and Polio-encephalitis.

ST. MARGARET'S HOSPITAL FOR WOMEN, Acomb-street, Whitworth Park, Manchester.

WEDNESDAY, March 9th.—4 P.M., Mr. Nils Stening: Swedish Massage, with demonstrations.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE COURSE.

TUESDAY, March 8th.—4.15 P.M., Mr. G. Jefferson: The Differential Diagnosis of Spinal Disease.

FRIDAY.—4.15 P.M., Dr. J. Wharton: Demonstration of Eye Cases.

UNIVERSITY OF LIVERPOOL. (Lady Jones Lecture.)
THURSDAY, March 10th.—4 P.M. (in the Surgical Theatre, Medical School), Prof. Vittorio Putti: New Conceptions in the Pathogenesis and Treatment of Sciatica.

ST. MARY'S HOSPITALS, MANCHESTER, POST-GRADUATE LECTURE.
FRIDAY, March 11th.—4.30 P.M. (at the Whitworth-street West Branch), Dr. D. Dougal: A Demonstration of Antenatal Cases.

ROYAL DENTAL HOSPITAL OF LONDON SCHOOL OF DENTAL SURGERY.
WEDNESDAY, March 9th.—5.30 P.M., Mr. J. G. Turner: Some Microscopical Researches in Dental Anatomy and Pathology.

UNIVERSITY OF SHEFFIELD POST-GRADUATE CLINICS.
FRIDAY, March 11th.—3.30 P.M. (at the Royal Hospital), Mr. Ferguson Wilson: Surgical Cases.

PEOPLE'S LEAGUE OF HEALTH. (Sims Woodhead Health Lectures.)
MONDAY, March 7th.—6 P.M. (at the Medical Society of London, 11, Chandos-street, W.), Prof. M. S. Pembrey: Digestive Organs and Lymphatic Glands.

CHADWICK TRUST LECTURES.
THURSDAY, March 10th.—5.15 P.M. (in the Barnes Hall of the Royal Society of Medicine), Dr. Carey F. Coombs: Rheumatism: Its Causes and Prevention.

Appointments.

DENNING, G. F., L.R.C.P. Lond., M.R.C.S., has been appointed Deputy Medical Officer, County Mental Hospital, Rainhill.

HOWELL, B. WHITCHURCH, F.R.C.S. Eng., Orthopædic Surgeon to the Essex County Council.

MITCHELL, H. A., M.B. Toronto, Pathologist to the Warrington Infirmary and Dispensary.

SILVERSTON, J. D., M.B., B.S. Durh., Deputy Medical Officer, Lancaster County Mental Hospital.

Certifying Surgeons under the Factory and Workshops Acts: THOMAS, J. G., L.R.C.P. & S.G. (Denbigh); TOWNLEY, J. S., M.B., Ch.B. Glasg. (Crickhowell, Brecon); Fordyce, W., M.D., Ch.M. Edin. (Mearns, Renfrew).

Vacancies.

For further information refer to the advertisement columns.

Ashton-under-Lyne, District Infirmary.—Res. Surg. O. Also H.S. £200 and £150 respectively.
Barnstaple, North Devon Infirmary. H.S. £150.
Bath, Royal United Hospital.—H.P. £120.
Belgarve Hospital for Children, 1, Clapham-road, S.W.—H.S. and Asst. H.P. Each at rate of £100.
Bolingbroke Hospital, Wandsworth Common, S.W.—Hon. Anæsthetist.
Bristol, Cossham Memorial Hospital, Kingswood.—Res. M.O. £150.
Burnley Union, Primrose Bank Institution.—Res. M.O. £300.
Bury Infirmary.—Third H.S. At rate of £150.
Coventry, Coventry and Warwickshire Hospital.—Res. H.P. £125.
Croydon Mental Hospital, Upper Warlingham, Surrey.—Sen. and Jun. Asst. M.O.'s. £650 and £350 respectively.
Delhi, India, Lady Hardinge Medical College.—Professor of Physiology. Rs. 750 monthly.
Dreadnought Hospital, Greenwich,—H.P. and H.S.'s. Each at rate of £110.
Durham County Hospital.—Jun. H.S. At rate of £120.
Enfield Urban District Council.—M.O.H., &c. £900.
Essex, Administrative County of.—Asst. County M.O.H. £700.
Federated Malay States, Central Mental Hospital.—Second Asst. Med Supt. £700.
Glasgow University.—Muirhead Chair of Obstetrics and Gynæcology.
Great Yarmouth County Borough.—Asst. M.O.H., &c. £600.
Hospital for Epilepsy and Paralysis, Maida Vale, W.—Hon. M.O. for X Ray, &c.
Hospital of St. John and St. Elizabeth, 40, Grove End-road, N.W.—Asst. P.
Ipswich, East Suffolk Administrative County.—Asst. County M.O.H., &c. £625.
King's Lynn, West Norfolk Hospital.—Jun. H.S. £100.
Leeds Public Dispensary.—Jun. Res. M.O. £150.
Leicestershire County Council.—Asst. County M.O. £750.
London, Female Lock Hospital, 283, Harrow-road, W.—Surg. Reg. £100.
London Hospital, E.—Two Medical First Assts. £300.
London Homœopathic Hospital, Great Ormond-street, W.C.—Third Anæsthetist. £50.
London Jewish Hospital, Stepney Green, E.—Med. Reg. and Out-patient Asst. Also Surg. Reg. Each £50.
London Lock Hospital, 91, Dean-street, W.—Surg. Reg. £100.
Manchester, Ancoats Hospital.—H.S. At rate of £100.
Manchester, Babies' Hospital, Burnage Lane, Levenshulme.—Res. M.O. At rate of £125.
Manchester, Baguley Sanatorium.—Asst. M.O. £350.
Manchester, Salford Royal Hospital.—Two H.S.'s. Each at rate of £125.
Middlesex Hospital, Mortimer-street, W.—Asst. Radiologist. £100.
National Hospital for Diseases of the Heart, Westmoreland-street, W.—Res. M.O. Also Out-patient M.O. At rate of £150 and £125 respectively.
Newcastle-upon-Tyne, Hospital for Sick Children.—Sen. and Jun. Res. M.O.'s. At rate of £120 and £100 respectively.
Nottingham City Mental Hospital.—Jun. Asst. M.O. £350.
Oxford, Radcliffe Infirmary and County Hospital.—H.P. and Cas. H.S. Each at rate of £120.
Plymouth, South Devon and East Cornwall Hospital.—Res. Surg. O., H.S., H.P. At rate of £100 and £50 respectively. Also Cas.H.S.
Prince of Wales's General Hospital, Tottenham, N.—Two H.S.'s, and H.P. At rate of £120. Also Jun. H.S. and Jun. H.P. At rate of £90l
Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—H.P. At rate of £100.
Richmond, Surrey, Royal Hospital.—Asst. H.S. At rate of £100.
Royal Free Hospital, Gray's Inn-road, W.C. (Children's Dept.)—First Asst. for Infant Welfare, &c.
Royal National Orthopædic Hospital, 234, Great Portland-street, W.—H.S. At rate of £150.
Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—Hon. Surg. Reg. and Hon. Orthopædic Surg.
St. John's Hospital, Morden Hill, Lewisham, S.E.—Res. Cas. O. At rate of £100.
St. Mary's Hospital, Institute of Pathology and Research.—Research Studentship. £200.
St. Peter's Hospital for Stone, &c., Henrietta-street, Covent-garden, W.C.—H.S. At rate of £75.
Samaritan Free Hospital for Women, Marylebone-road, N.W.—H.S. At rate of £100.
Sheffield, Winter-street, Hospital for Tuberculosis.—Res. M.O. £350.
Southampton, Royal South Hants and Southampton Hospital.—Jun. H.S. At rate of £150.
Stockton-on-Tees, Stockton and Thornaby Hospital.—Sen. R.M.O., Also Second R.M.O. and Jun. R.M.O. £175, £150 and £125 respectively.
Surrey County Council.—Asst. M.O. in Public Health Dept. £600.
Sydney University, New South Wales—Director of Cancer Research. £2000.
Wellhouse Hospital, Barnet.—Asst. Res. M.O. £250.
West London Hospital, Hammersmith-road, W.—H.P. and two H.S.'s. Each at rate of £100. Also Hon. Med. Reg. £100.
Winchester, Royal Hampshire County Hospital.—Hon. Surg. in Ordinary.
Worcester General Infirmary.—Jun. Res. M.O. £120.

The Chief Inspector of Factories announces the following vacant appointments for Certifying Factory Surgeons: Aylsham (Norfolk), Tideswell (Derbyshire), and Linton (Cambridgeshire).

Births, Marriages, and Deaths.

BIRTHS.

ADAMS.—On Feb. 18th, the wife of Dr. David Rutherford Adams, Linden Lodge, Torquay, of a daughter.

BRIGGS.—On Feb. 23rd, at Hawes Hill Farm, Holyport, Berks, the wife of Percy J. Briggs, M.A., M.R.C.S., L.R.C.P., of a son.

PANTON.—On Feb. 23rd, at Lindisfarne-road, Newcastle-on-Tyne, the wife of Major H. F. Panton, R.A.M.C., of a daughter.

RAYNER.—On Feb. 24th, at The Ledge, Hythe, Kent, the wife of Dr. E. C. Rayner, of a daughter.

THOMSON.—On Feb. 23rd, at Woodland House, Penrith, Cumb., the wife of Douglas D. C. Thomson, M.R.C.S., L.R.C.P., of a daughter.

MARRIAGES.

MCDONALD—BRIGHT.—On Feb. 17th, at the Register Office of St. Giles, Bloomsbury, W.C., Niel McDonald, M.B., Ch.B. Vict., M.R.C.S. Eng., L.R.C.P. Lond., to Hilda Gladys May Bright, B.A., A.R.C.M.

DEATHS.

BEVEN.—On Feb. 18th, at High-road, Lee, S.E., Octavius Beven, M.D., B.S., D.P.H., aged 57.

BOURKE.—On Feb. 19th, at Moreton-gardens, South Kensington, William Henry Bourke, M.D.

COOK.—On Feb. 20th, at Poole-hill, Bournemouth, Issac Reginald Cook, M.B., B.S. Lond.

HILLIER.—On Feb. 22nd, at 396, Ecclesall-road, Sheffield, Robert John Hillier, M.R.C.S., L.R.C.P., aged 58.

LE CRONIER.—On Feb. 19th, at Queen's-avenue, Jersey, Hardwick Le Cronier, M.R.C.S., L.R.C.P., in his 71st year.

LONG.—On Feb. 23rd, at The Close, Norwich, Frederick Long, M.R.C.S., L.R.C.P., formerly of Wells, Norfolk, in his 87th year.

ROSS.—On Feb. 18th, at Norwood, Invergordon, N.B., George Ernest Ross, M.A., M.B., Ch.B., late of Bishop Auckland.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

MENTAL DISEASE IN RELATION TO EUGENICS.*

BY A. F. TREDGOLD, M.D., M.R.C.P. LOND., F.R.S. EDIN.,

PHYSICIAN TO OUT-PATIENTS DEPARTMENT AND LECTURER, BETHLEM ROYAL HOSPITAL, ETC.

DISEASE in general is the result of a failure of the organism to adapt itself to the inimical agencies of its environment. If this failure is slight and temporary the departure from health is transient; if it is severe a grave illness or disease results; if the failure is complete, the organism dies. In short, efficient adaptation is not only essential to health, but it is probably the basic characteristic and the distinguishing feature of life. Disease of mind is no exception to this general rule. The efficient adaptation and response of mind to the experiences and demands of the environment constitutes mental health. Failure of adaptation is the essential feature of mental ill-health and disease.

It is very necessary that we should distinguish between disease and eccentricity of mind. Many persons exist whose mode of thought and behaviour differ so much from the majority of mankind as to cause them to be regarded as queer and eccentric. But these are by no means inefficient or lacking in adaptation; on the contrary, they are often pioneers in thought and valuable members of the community.

Defect, Disorder, and Decay of Mind.

The failure of adaptation which is the essential feature of mental disease may be divided into three forms. In the first, failure is due to the fact that the mind has not developed up to the stage which is requisite for efficient adaptation to take place. There is a permanent and incurable deficit. This condition constitutes mental deficiency. In the second form, the failure of adaptation is due not to incomplete development but to a disturbance of mental function. This disturbance may be slight and transient, or it may be profound and of long duration. It may involve minor mental functions only, or it may be so extensive as to upset the whole mental balance. In short, it ranges through various "borderland" conditions to insanity. In the third form, adaptation fails because mind is in process of deterioration and decay. This may, of course, be a consequence of old age and it is then merely physiological; but it very frequently occurs long before the average span of life has been reached, and it is then pathological. In one of the commonest forms of mental disease such decay sets in during the period of adolescence and it may even appear in the first decade of life. Deterioration of this kind is usually steadily progressive and it constitutes the various types of dementia.

I may remark that although it is convenient for purposes of description to speak of *defect*, *disorder*, and *decay of mind* as if they were totally separate conditions, there is nevertheless a very close relationship between them. While it is true that mental disorder is often only temporary, and completely recovered from, yet in many cases recurrences occur, and in a considerable proportion such disorder is but the initial manifestation of an incurable mental decay. Even the subject of mental deficiency not infrequently suffers from disorder and decay of such mental capacity as he possesses. I shall also hope to show that, with certain exceptions, all three forms are really but different manifestations of one and the same underlying cause.

The Cause of Mental Disease.

With regard to the cause of mental disease, there is not the slightest doubt that a proportion of cases are the result of adverse external agencies, acting directly upon the individual. Thus the development of the brain may be arrested by injury or disease and mental deficiency result. The normally developed brain may be damaged by poisons or inflammation and insanity or dementia supervene in consequence. A perfectly healthy individual may be subjected to such extreme mental stress as to cause mental derangement. Cases of this kind, however, comprise a relatively small proportion of the whole, and there is clear evidence that the great majority of persons suffering from defect, disease or decay of mind, owe their condition to an inherent predisposition. This predisposition may be so great as to produce its effect in the entire absence of any external factor; in other instances it is conjoined with such factors which, however, are usually so trivial that they would have had no effect upon a normally constituted individual.

* The Galton Lecture (abridged) delivered before the Eugenics Society on Feb. 16th, 1927. The lecture will be published in full in the April issue of the Eugenics Review.

The Hereditary Factor.

Thus I estimate that about four-fifths of all cases of mental deficiency are due entirely to inherent causes. It is generally agreed that the great majority of cases of dementia præcox are the result of an inherent predisposition. With regard to insanity and the various psychoses, external influences play a considerably larger part, but even here it is generally accepted that the main cause is constitutional rather than environmental. As is well known, a very large number of cases of mental disorder occurred during the recent war and were attributed to "shell-shock." But the men so affected were exposed to no worse conditions than were thousands of others who suffered from no serious mental disturbance, and in very many cases so-called "shell-shock" occurred in men who had never left England and had never even seen a shell. The real cause of the breakdown was mental stress, and in most of the sufferers a definite predisposition to such breakdown was present. In short, whilst recognising the contributory, and in some cases the directly casual, part played by the environment, I have no hesitation in saying that an overwhelming proportion of cases of mental disease must be regarded as primarily due to innate and not to external causes.

But there is something more. When careful inquiries are made into the family histories of these persons it is found that in very many instances other members of the family have also suffered from some form of mental abnormality. In other words, there is evidence of a *family* predisposition. The connecting link between the members of a family is, of course, the germ-plasm, and hence it is justifiable to conclude that in such cases the predisposition is germinal and has been hereditarily transmitted. It follows that the majority of cases of mental disease are the result of inheritance.

At this point it is important to refer to a matter about which there is considerable misunderstanding. It is often assumed that when a condition is said to be due to inheritance it necessarily follows that it has existed in the same form in the ancestors, and that it will be transmitted in the same form to succeeding generations. Thus in the particular instance of mental disease, it is assumed that the person who is mentally deficient must be the offspring of a mentally defective parent, or the person who is insane the offspring of an insane parent. This is not the case. Speaking strictly, there is no such thing as the inheritance or transmission of mental defect, or insanity, or indeed of any quality as it actually exists in the individual. It is, of course, certain that every organ and tissue of the body is represented in the germ-cells from which it is derived, but such representation is not in the form of the actual organs or tissues, but as "determinants" or "directive forces," and it is important to realise that what is inherited is a tendency for development to proceed in certain particular directions and up to a certain limit—in short, a developmental potentiality.

Now there is reason to think that the developmental potentiality of the germ-cells may, in certain circumstances, be considerably impaired. If such impairment is general and widespread, it is extremely probable that the embryo will die at an early stage of its career. In such cases the general devitalisation does not permit of that degree of development which is necessary for the maintenance of independent life. If the impairment is localised to one "determinant" only, there will then be a tendency to imperfect development or defective durability of the corresponding organ or tissue. This localised impairment constitutes a diathesis and when it concerns the central nervous system it is termed the "neuropathic diathesis." The point I desire to emphasise is that in cases of mental disease the inheritance is not of the disease itself, but of this neuropathic diathesis. In other words, what is inherited is a diminished vitality and an impaired developmental potentiality of the neuronic determinant.

A Suggested Hypothesis of the Genesis of Mental Disease.

I think we have now arrived at a stage at which it is possible to formulate a working hypothesis of the genesis of mental disease and a concept of the manner in which the three chief forms of this disease are linked to one another; what I suggest is the following:—

First, the basis of most cases of mental disease is an inherited predisposition. This predisposition is the result of an impairment of the developmental potentiality of the neuronic determinant within the germ-cell, and this is caused by adverse factors of the environment. In all probability these factors consist of toxins, which are either introduced into the body from without, or are developed within the body itself. These act either by directly poisoning the germ-cells or by depriving them of some essential food constituent. In consequence of differing degree of susceptibility of the germ-cells and of differing degrees of potency of the factors to which they are exposed, the intensity of the impairment varies in different individuals and in different germ-cells of the same individual. Although some

advocates of Weismannism hold that the germ-plasm is not only "continuous" but that it is proof against such influences, I am of the opinion that there is clear evidence that such an impairment does actually occur.

Secondly, the results of this impairment of the germ-cell are influenced by the condition of the cell which it fertilises or by which it is fertilised. This raises the question of the mode of hereditary transmission—namely, whether this is in accordance with Mendelian laws or whether it is by blending. Numerous attempts have been made to show that mental disease, and particularly mental defect, is a Mendelian unit which is transmitted according to Mendelian laws. In my opinion these attempts have completely failed, and I think the evidence is strongly against the impairment being a Mendelian unit and in favour of the condition of the zygote being a blending of the developmental potentiality of the two gametes. I think, therefore, that if there is a similar impairment of the combining cell the developmental potentiality of the embryo will be still further reduced, but that if this cell is healthy the developmental impairment will tend to be lessened.

Thirdly, since inheritance is of developmental tendencies only, the environment will play a part in their realisation. Adverse factors of the environment which are in operation before the development of the brain is complete may still further embarass that development and accentuate the tendency to imperfection. Factors acting after the completion of development may render any latent defect of durability patent and may cause the mental breakdown of an individual in whom the predisposition is only slight and who might otherwise go through life apparently normal.

Impairment or Devitalisation of the Germ-cell.

The view I put forward, therefore, is that (with the exception of those cases which are directly caused by the environment) the various forms of mental defect, disorder and decay, are manifestations of one and the same condition —namely, an impairment or devitalisation of the germ-cell. This occurs in varying degrees; when severe, it causes brain development to be so incomplete that the individual is mentally deficient. When less pronounced, brain development may take place normally, and the temple of mind may be erected, but the structure is so lacking in durability that it at once begins to crumble away and dementia præcox results. When the germ impairment is of still less degree, mind is completely developed and may function normally for many years; indeed, should the individual live in sheltered surroundings, it may do so for the whole span of life; but exposure to mental stress or physical illness, or the changes incident to the climacteric or other critical period of life, will be very prone to result in a breakdown, and this in many cases will be the beginning of a steadily progressive dementia.

As I have pointed out, however, two other factors have to be taken into account—namely, the condition of the second or combining germ-cell, and the nature of the environment, especially during the early and rapid stage of brain growth. If the second cell is healthy and the early surroundings entirely favourable, I think that a slight degree of impairment may be entirely neutralised, it may even be "bred out." On the other hand, if the second gamete is similarly impaired, there will be an accentuation of the process and a tendency for the developmental potentiality and durability of the brain cells to be still further lessened. This may itself give rise to mental defect, or defective development may result from the operation of some comparatively trivial environmental factor.

It is clear that combinations of these three factors—namely, variations in the degree of germ impairment, the condition of the combining cell, and the nature of the environment, will be responsible for very varying results in different individuals derived from the same stock or belonging to the same family. It is well known that these differences occur and they are a cause of much perplexity; but I think they are explicable on this view. It not infrequently happens that an individual who has inherited the neuropathic diathesis mates with one who is similarly tainted. There is then a predisposition for the mental impairment to assume a more severe form in the next generation, or to occur at an early period of life, a process which is called "ante-dating," and which has long been known to mental specialists. The final result of this process is pronounced mental defect with sterility and extinction, and hence I have termed idiocy the logical culmination of the neuropathic diathesis. In other instances a victim of the neuropathic diathesis mates with an individual who is healthy. Their offspring, although carrying the taint, and probably showing some impairment of mental capacity and resistance, may not actually suffer from mental disease. But the fire is only smouldering and should one of these in turn mate with a neuropath, or should he or his offspring be exposed to some adverse environmental influence, it may readily be fanned into a flame and dementia, insanity, or mental defect result. In this way mental disease is kept alive by "carriers," who may themselves appear to be normal, or who at all events do not suffer from a degree of abnormality which would be recognised as disease.

In giving this short outline of the genesis and mode of production of mental disease I wish to make it quite clear that I am only advancing a working hypothesis. The complexity of the subject is great and there are many gaps in our knowledge, but I venture to think that the hypothesis is a logical one and that it does afford an explanation of facts which are otherwise extremely perplexing.

Mental Disease and Genius.

We have now to consider the bearings of mental disease upon eugenics. At the outset it is necessary to allude to a prevalent misconception regarding the relationship of mental disease to genius. Since Dryden proclaimed that: "Great wits to madness nearly are allied, and thin partitions do their bounds divide," it seems to have been commonly assumed that genius is so intimately connected with insanity that we must cheerfully put up with the latter for the sake of the former, and that any attempt to diminish mental disease by restriction of propagation may have the disastrous result of robbing the world of a possible superman. Now I fully admit, of course, the great benefits which have resulted to mankind from the works of men of genius; it is, indeed, to the existence of such men of outstanding ability in the various departments of human knowledge, thought, feeling, and action, that we largely owe our past progress and our present civilisation. There is also no doubt that some of these men have been of poor physical constitution and prone to ill-health, whilst others have been eccentric and possessed of delicately balanced minds. But I have searched in vain for any close correlation between genius and insanity, and I believe the commonly accepted view that such exists to be a completely mistaken one. On the contrary, I think it will be found that the great majority of men and women of outstanding ability have been particularly sane, and have come of a sane and healthy stock. It is, therefore, an utter fallacy to assume that the elimination of mental disease would mean the elimination of genius, and I am in complete agreement with the views on this point expressed by Major L. Darwin in his valuable work on "Eugenic Reform."

The Damage to the Race inflicted by Mental Disease.

On the other hand, there is clear evidence that mental disease is closely correlated with social incapacity, inefficiency, and retrogression. And, serious as is the damage done by mental disease to the present generation, I believe that inflicted upon the race to be even greater. There can be no question that one thing which is urgently needed is the prevention of the propagation of those persons who suffer from any form of mental disease due to inheritance.

In the case of mental defectives two methods for preventing this propagation have been suggested—namely, sterilisation and segregation. This is not the place to discuss in detail their respective merits. I will merely say that after careful consideration of all the points involved, such, for instance, as practicability, cost, the happiness of the defectives, and the effect upon the community of the release from care of persons who are incapable of caring for themselves, I have come to the conclusion that the advantages of segregation far outweigh those of sterilisation. In saying this I realise that there are many persons suffering from the milder grades of mental defect who are not themselves in need of institutional care, and in whose case the chief danger is propagation. Even here I consider that there are abundant reasons against sterilisation, and I believe that if ascertainment were only properly carried out, so that the whereabouts of each person was known; if every person not in an institution was placed under statutory supervision and the methods of such supervision improved, so that he could be removed to an institution should circumstances arise to make this desirable; and if the marriage of mental defectives was made illegal, the risk of propagation would become practically negligible.

It is necessary to point out, however, that even if, by sterilisation, or segregation, or supervision, we could absolutely prevent propagation by defectives, we should by no means eliminate mental defect or disease, indeed it is very doubtful if we should produce any considerable effect at all. For, in spite of the fact that approximately 80 per cent. of such cases are due to inheritance, the proportion who are the offspring of a mentally defective parent is a very small one. The great majority of defectives are produced by parents who have either been insane, or have been carriers and have not been certifiable at all. The sterilisation or segregation of every defective would merely prevent the birth of that relatively small number who are the offspring of parents who are themselves defective. I think that if it were possible to apply either of these methods to the insane the effect would be considerably greater, for propagation by the insane is much more extensive than by

defectives; but even then we should be a long way from the eradication of mental disease. In order to produce any really marked diminution in the amount of mental disease throughout the community it would be necessary to sterilise or segregate every carrier of the neuropathic diathesis, which is obviously impossible.

But were it even possible to do this, we should be faced with another difficulty. There is every reason to think that the causes of germ impairment are still at work, and, this being so, a fresh crop of persons suffering from the neuropathic diathesis would soon come into existence. Although we have succeeded in removing some of the causes, and are in process of removing others, it seems likely that every change in social conditions and every advance in evolution brings in its train certain inimical agencies which may produce impairment of the germ-cells of those individuals who are unfit to continue the march. I have little doubt that for many generations to come devitalisation of the germ-cells and the neuropathic diathesis will continue to be produced. It is possible that this process may even be a salutary one and that if only such affected persons could be prevented from contaminating the healthy, it might, in the long run and from the racial point of view, be productive of good rather than harm. Unfortunately nothing is done to prevent such contamination, and there is a very real danger of the dragging of sound stocks into the vortex of disease and of the diffusion of the impairment throughout the mass of the community.

The Need for Education in Eugenics.

What, then, is to be done? My own feeling is that there is one way, and one way only, by which we can hope to stem degeneracy and advance racial progress. That way is by an educational campaign whereby the whole community shall be enlightened as to the part played by inheritance in the causation of health and disease; in other words, by developing throughout the nation the eugenic ideal. By the eugenic ideal I mean not merely the intellectual recognition of the desirability of producing sound and healthy offspring, but a feeling, or an emotion, regarding this idea; a sense of shame and repugnance at the thought of bringing into the world delicate and defective children; a sense of satisfaction, of increased self-respect, and of duty well done at the thought of producing children who are healthy and capable. This may sound unpractical, perhaps, to some persons even fantastic, but I do not think it is either. In terms of psychology such an ideal constitutes a sentiment and the human mind has a great capacity for acquiring sentiments. It has already developed the religious and the aesthetic sentiments to a very high degree, and, just as all moral and cultured persons now feel deep repugnance at the idea of committing a crime, or when confronted with a disharmony in music, colour, form, or social decency, so I believe it to be equally possible for them to develop the eugenic sentiment, or if we prefer so to call it, conscience.

No doubt our knowledge is far from complete, but there is quite enough to go upon, and I think the education of the nation should be the main objective of this society. It is impossible to conceive of any more important task or of one which would be attended with greater benefit. For it does not admit of any question that in the last resort the very existence of a nation must depend upon the condition of its citizens, and it is extraordinary that a people which prides itself upon its sound common sense and business capacity should be content to spend millions upon the cure, care, and maintenance of persons suffering from disease, and take practically no steps to prevent it at its source.

A CORRECTION.

To the Editor of THE LANCET.

SIR,—In recording (THE LANCET, Feb. 26th) the gratifying appointment of Colonel J. G. Martin to be honorary physician to the King, you say: "It is understood that this is the first time this honour has been granted to a Territorial officer." Your informant must, I think, have been under a misapprehension, for in fact such appointments have been regularly made from the Territorial Army for a number of years.

I am, Sir, yours faithfully,

March 1st, 1927. X. Y. Z.

UNITED STATES MEDICAL SERVICES.

THE annual reports of the Medical Directors of the United States Army, Navy, and Public Health Service are summarised in the *Military Surgeon* for February. The Surgeon-General of the Public Health Service gives the death-rate in 30 States (out of the 48) as 11·7 per 1000. The case-mortality of small-pox was over 30 per cent. in Washington and Minneapolis (470 cases), whilst in Indianapolis and Omaha there was no death among 1000 patients. In a population of 100 millions (36 States) the death-rate from tuberculosis was about 0·82. The mortality from typhoid slightly increased, but the programme for controlling venereal disease is believed to have been a great success. Numerous activities of the service are mentioned, and accounts are given of how it fought plague-infected rodents in California, and how it used aeroplanes to spread arsenical dust on lakes to control malaria by destroying the larvæ of mosquitoes. Immigrants are now inspected before they leave Europe, but immigration inspection is still continued at ports in the United States, as all foreign seamen must be examined as prospective immigrants. In 1925 there were 872,842 foreign seamen so examined.

In the United States Army in 1925 there were 983 medical officers in charge of the health of 135,840 men. This gives a ratio of 1 to 138, and the Surgeon-General thinks that the medical strength should be higher. Admissions for disease amounted to 518 per 1000, whilst the total death-rate was 3·77, of which 1·71 was accounted for by disease. The lowest mortality in any group was actually among the white troops in Panama, which shows what skilled sanitation can achieve. The death-rates from pneumonia and tubercle were almost identical at about 0·23 per 1000, whilst suicide (0·31 per 1000) was the highest single cause of death. Invaliding was 17 per 1000, but half those invalided were in their first year of service. Invaliding for tubercle was 1·72, whilst for mental disease the rate was three times higher. There were four cases of typhoid with two deaths. Athletics occasion many admissions for injury. In ten years before the establishment of a dental corps (1887-97) there were 36 cases of arthritis per 1000, but in the last five years the figure has been only 13. Thanks to the inspection of milk and meat by the Veterinary Service, 97·2 per cent. of the animal food condemned was dealt with before purchase, which meant a great saving to the Government. The annual physical examination of officers is said to be so generally approved that reserve officers are asking that it may be extended to them.

The United States Navy had in 1925 about 113,000 men; admissions were 531·9 per 1000 from all causes; the death-rate was 3·60 (from disease 1·53). There were only four cases of typhoid and general hygienic conditions were described as good.

HUNTER AND ABERNETHY.

To the Editor of THE LANCET.

SIR,—Sir Berkeley Moynihan's Hunterian Lecture to the Royal College of Surgeons of England on Hunter and Abernethy was revealing with its wealth of illustration and rare vision. We may well rejoice that we have as President of the College a man of liberal education whose theme is Life.

But there is one point I would like to make. Notwithstanding Abernethy's evidence of Hunter's "heavy delivery and unengaging," I cannot but believe that Hunter was eloquent and not unattractive. "Sincerity is the foundation of expression in writing" said John Morley, and surely it must be so in speech. There are different kinds of accent. Livingstone was only a stuttering orator, and how gladly we would listen to the sincerity of a Livingstone or a Hunter.

I am, Sir, yours faithfully,

Willesden Green, Feb. 28th, 1927. RICHARD GILLBARD.

The History of Harley Street.—In an annotation with this title (THE LANCET, Feb. 26th, p. 449) we stated that Sir William Jenner was the first consultant to take up his residence in Harley-street. Mr. Percy Flemming, in his address at the Royal Society of Medicine, described him only as one of the earliest to go there; he was the first member of the University College Hospital staff to make the move.

VOLUNTARY HOSPITAL POLICY.—Speaking at the annual meeting of the General Lying-in Hospital, Lambeth, last week, Lord Onslow, Under Secretary for War, said that the Government were firm supporters of the voluntary hospital system, and expressed his belief that the grant of £500,000 towards meeting the maintenance deficits from which the hospitals were suffering after the war had not only not harmed the voluntary principle but had benefited it by setting up local committees.

OPHTHALMOLOGY IN DORSET.—The Society of Dorset Men in London has presented a new ophthalmic department to the Dorset County Hospital, Dorchester, in memory of the first hon. secretary of the Society, the late Mr. William Watkins. Sir William Lister, in a speech at the opening ceremony, said that he did not believe that the sight of the nation had deteriorated, and that the contrary impression was based upon the fact that children's eyes were now for the first time being cared for.